FRANK ZAPPA AND THE ORCHESTRA QUESTION: DISSONANT CLATTER OR WELL-CRAFTED DESIGN?

CHANAN HANSPAL

Thesis submitted in partial fulfilment of the requirements of the University of South Wales for the degree of Doctor in Philosophy.

2016

ABSTRACT

This study offers an insight into the orchestral music of Frank Zappa and his unique approach to composition. In Chapter 1, *The Fieldwork So Far*, I present an extensive annotated bibliography of selected Zappa research to illustrate the multiple forms of discourse generated by the composer's work. While this chapter examines various books and articles written about Zappa, it also illustrates the imbalance between critical theory and musicology. Chapter 2, *Structure, Concepts and the Analytical Approach*, describes analytical methods used as a rationale to determine modes of consistency across the studied pieces herein. As well as describing the analytical approach, I offer to align the conceptuality and design of the Calder Mobile with Zappa's theory of weights, balances, measured tensions and releases by providing specific extracts of compositions where these concepts can be seen to exist.

In chapter 3, I present the first analysis in this study of "Pedro's Dowry", a highly dissonant piece of music that builds on the idea of thematic and fragmental repetition. Chapter 4 is an analysis of "The Perfect Stranger", a piece that demonstrates extensive use of Zappa's *Chord Bible*. The chords are dense scalar derived structures exploiting both the octatonic and Minor Lydian scales, yet retaining fragmental and sectional repetition techniques. The analysis of "Bob in Dacron" in chapter 5 illuminates the process of intervallic manipulation and confirms the importance of recurrent ideas dispersed throughout. And, "Mo 'n Herb's Vacation" in chapter 6 shows the implementation of thematic and fragmental ideas developed across all three movements of the piece; essentially techniques consistent with Zappa's approach in the preceding analyses.

Chord formulas are discussed in chapter 7 where I present a chronicle of chord formation within Zappa's orchestral pieces from early incarnations found in compositions

written in the 1960's to more evolved examples in later pieces. There is also an examination of two recurring melodic cells that are extrapolated in various forms across several pieces of music. Some of the analyses in this chapter are extended into the non-orchestral pieces to illustrate the wider creative manipulation of the recurring musical cells. In chapter 8, I attempt to align and frame Zappa's orchestral music within the basic concepts of time consciousness, musical motives and categorization. I also address the composer's concept of universal time and how this could be seen to function within his music. This final chapter plays an important part in contextualising much of what resides in the preceding analyses of chapters 3-6.

NOTE

Some of the musical examples presented herein are derived from studies carried out by American academics, and therefore the reader may occasionally encounter the term "measures" instead of bars within these particular examples.

DEDICATION

To my beloved Mother

Yvonne Elizabeth Hanspal for her unwavering support and encouragement.

ACKNOWLEDGMENTS

I would like to express gratitude to my supervisor, Dr. Paul Carr, for his advice, encouragement and support throughout the dissertation process. I would like to thank Ed Mann for his generous assistance in providing important and useful information on some of Zappa's compositional processes and for sharing with me interesting conversations he had with the composer. Thanks to David Ocker for his generous spirit and astute comments on some of the challenging aspects inherent in Zappa's compositions. I would like to express appreciation to Arthur Barrow who provided some useful Zappa hand written music notation resources to aid in specific analyses. Also thanks to Miguel Roig-Francolí for helping me better understand his Pitch Class Set Extension theory.

Most importantly, I would like to thank my family for their support over the years and for encouraging me every step of the way.

TABLE OF CONTENTS

CHAPTER 1

Fieldwork So Far

Over the last few years, interest in Frank Zappa and his music as an area of study has grown. Articles and dissertations have appeared which approach the study of Zappa in interesting ways. Some academics have chosen to assess Zappa's work via critical theory, while others have opted for musical analytic methods. The potential breadth of study for illuminating features about the composer and his music is impressive. This is largely a result of the overwhelming volume of Zappa music and the culturally charged narrative that accompanies it. Zappa's engagement with multiple forms of music and media set against his cultural and socio-political views and criticisms present the academic with a broad range of possible subjects that may be brought to the area of research in order to reach an understanding of such a complex figure. One area that facilitates a wealth of academic potential is the inherent confliction in Zappa's music. The composer tends to circumvent any restrictive form of musical partisanship, consequently invoking a certain amount of urgency for the inquisitive to explore connections and meaning in alternative ways. The idea of an all-encompassing compositional resource where almost anything is deemed suitable for inclusion in a given piece of music proves to be, in Zappa's case, enormously productive. Delville and Norris in *Frank Zappa, Captain Beefheart and the Secret History of Maximalism* (2005) explore this idea assimilated to Maximalism where artistic excess is exemplified by an exhaustive accumulation of vast and highly conflicting musical styles.

> Zappa's ambition "to be the age itself" clearly manifests itself in his penchant for works that seek to incorporate – albeit in a frequently ironical fashion – nearly all existing musical genres and modes, from straight blues-rock and doo-wop to musique concrète, free jazz and symphonic orchestral works.[1]

[1] Delville, M. and Norris, A. 2005. *Frank Zappa, Captain Beefheart and the Secret History of Maximalism*. Cambridge: Salt Publishing.

Out of this, arises the problem of classification, itself a contentious subject that opens the field of study significantly. The inability to firmly position Zappa in the 'culture industry'[2] musically or otherwise presents many obstacles. For instance, how does one approach Zappa's music analytically? Is it possible to apply established structural methods of analysis and if so, what will it show? How does one resolve the contradiction of the avant-gardist as entertainer? What can semiology demonstrate? Does reference to philosophers and poets or any of the aforementioned questions bring us closer to understanding Zappa? Some of these questions have already been addressed as we shall see, however, it is clear that the classificatory problem is not exclusive to music, testament to the related literary texts in which attempts are made to address Zappa politics. We have seen some acute observations of contemporary culture, Deconstructionism, Maximalism and Marxism, all subsumed within the highly articulate academia of Zappa. The evidence suggests that Zappa is worthy of investigation because of the perplexing and fascinating aspects that can be derived from the composer and his work.

Demented Scholarship

Before discussing the musical analytic work of which this chapter is mostly concerned, I shall present an overview of some of the literary texts as a benchmark by which to measure literary over notational analysis. From the literary side, the extrapolation of Zappa in academia has been steadfastly increasing since the publication of Ben Watson's significant and influential book, *Frank Zappa: The Negative Dialectics of Poodle Play* (1994). Its importance lies in the fact that it was the first extensive critical evaluation of Zappa. Watson chronologically traces the recorded output while drawing from multiple key figures of intellectual and poetic vigour

[2] This term is derived from 'The Culture Industry: Enlightenment as Mass Deception', chapter in Adorno and Horkheimer's *Dialectic of Enlightenment*, (1944) where it denotes the correlation between post-Enlightenment rationalism and mass culture as a system of domination.

to support the polemic nature of the composer's lyrics and social commentary, with interesting assimilations to Adorno, Plato, James Joyce, Kafka and Shakespeare. Although the book consists of the occasional laboured correlation, it is these correlations that prove to be interesting; the subsequent development of ideas into broad areas of study is fascinating. For example, the album *Apostrophe (')* (1974) is perceived by Watson to be laden with themes equatable to Shakespeare's *King Lear*. Extracts from the play are linked to aspects of *Apostrophe (')*; a series of utterances by Lear and the Fool relating to 'nothingness' and 'absolute zero' are conceptually appended to the introductory lyrics of "Don't Eat the Yellow Snow", where 'O' is the rhyming correspondent. The reference to blindness in "Nanook Rubs It" is considered relative to the centrality of *King Lear*, Cordelia's expulsion by Lear is exemplary of his short-sightedness in realising her genuine disinterest in power, as is the Earl of Gloucester who only after blindness realises the sincerity of his son Edgar, essentially the two men are blind to the true affections of their children. At one point in the play, Lear has his boots removed by the Fool whereupon Watson directs us to Fido who brings the slippers to Zappa, the underlying principles of *Apostrophe (')* are therefore revealed, blindness and feet. The *Apostrophe (')* and *King Lear* connection is what initially aroused the interest of Zappa[3] and also caused Matt Groening[4] to aptly describe the approach as "demented scholarship".[5]

As 'demented' as Watson's work may appear, it has been suggested that Watson's perspective seems at odds with his Marxist leanings, such as his justification of Zappa's capitalist tendencies. Haselden (2000) claims, "orthodox Marxists might dismiss Zappa as defender of the status quo masquerading as a radical critic"[6] and Thompson (1994) states that

[3] Watson in *The Negative Dialectics of Poodle Play* (1994, p. 537) refers to the *King Lear* extract that was initially sent to Gail Zappa, and that it had amused both her and Frank Zappa enough to invite the author to their home to recite.
[4] Matt Groening is an American cartoonist and creator of the popular animated series *The Simpsons*.
[5] Watson, B. 1994. Hail and Farewell, *The Wire*, 120, p. 26-30.
[6] Haselden, K. 2000. 'Book Review, Frank Zappa: The Negative Dialectics of Poodle Play'. *Capital & Class*. 24(3), p. 237.

Watson, "approaching his subject from a doctrinaire, hard-left political perspective… would seem to be the very antithesis of Zappa's free-market seditioneering".[7] Furthermore, Wragg (2001) opines that, "Zappa's own commitment to a tightly controlled form of market capitalism as a form of dissent indicates a contradiction in his own practice".[8] But Watson extinguishes the contradictory force by identifying the subject's non-allegiance to any class constraint, "Zappa can steer his way through such contradictions only by refusing to entertain such analytical concepts as 'right and left' and 'capitalist and worker".[9] Contentious as this area may be, there are other aspects which for some academics seem too problematic to ignore and hence introduce new arguments and investigations.

Cross Examination via Adorno

In "The Critique Criticised: Adorno and Popular Music" (1982), Max Paddison suggests that we consider the 'hidden potential' of Adorno's work and its application to radical popular music.[10] In his critique of popular music, Adorno juxtaposed 'serious' and 'popular' music for comparative ends, yet accepted that the distinction had become irrelevant, "[t]he difference between 'serious' and 'light' culture is either eroded or expressly organized and thus incorporated into the almighty totality". Serious art has been consumed by the forces that have transformed it into a commodity by "having reconciled popular appeal with cultural distinction".[11] For Adorno considers, popular music trite and banal which merely serves a limited purpose of ephemeral escapism, pandering to the most common denominator, with the

[7] Thompson, B. 1994. 'Book Review/Idol speculations: 'Frank Zappa: The Negative Dialectics of Poodle Play' - Ben Watson'. *The Independent*, 17th July [online]. Available at: http:// independent.co.uk/arts-entertainment/book-review--idol-speculations-frank-zappa-the-negative-dialectics-of-poodle-play--ben-watson-quartet-25-pounds-1414463 (Accessed: 10 November 2013).
[8] Wragg, D. 2001. 'Or any art at all?': Frank Zappa meets critical theory. *Popular Music*, 20(2), pp. 205-222.
[9] Watson, B. 1994. *Frank Zappa: The Negative Dialectics of Poodle Play*. London: Quartet Books Ltd.
[10] Paddison, M. 1982. 'The Critique Criticised: Adorno and Popular Music'. *Popular Music*, 2, pp. 201-218.
[11] Adorno, TW. 1991. 'The Schema of Mass Culture,' in Bernstein, JM. (ed.) *The Culture Industry: Selected Essays on Mass Culture*: Routledge, pp. 53-84.

cynical intention to render the listener docile and unperturbed, by facilitating complacent consumption of music that upholds commonly accepted cultural norms in society. Although one can acknowledge the pertinence of his critique, Adorno's analysis of popular music lacks the vitality and meticulous attention to detail that is found in his writings on serious music. However, in pursuing the 'hidden potential', Paddison recognises that elements of Adorno's work indicate that the prospect of music existing within the culture industry can function without being entirely overwhelmed by it, so long as it is critical and self-reflective.

Paddison supports the view that popular music can function autonomously with the ability to "take on a critical character and to manifest this not only in the texts of the songs, but also within the construction of the music itself".[12] While the author deduces that this could easily apply to Zappa, it is the early incarnation of the Mothers of Invention that is indicative of the diametrically opposed coexistence of 'radical' and 'popular' music styles. The post-Mothers of Invention period is not considered to have the same critical value, the implication is that Zappa's move to a more popular sound during the 1970s renders the music somewhat deficient in balancing the oppositional forces deemed to be more prevalent in the earlier recordings. Indeed, Delville (2013) suggests "Zappa's post-Mothers of Invention career could be accused of departing from the radical aesthetics of the radical avant-garde and of veering away towards anti-modernist tonality and postmodern eclecticism".[13] Though, Delville also notes that radicalism was still a vital component but had shifted to other areas. Watson (1994) also states that, "[t]hose who proclaim Zappa 'finished' after that [the break-up of the original Mothers] are asking for something no professional musician can deliver: the long-term perpetuation of a historical moment".[14] But for Paddison, the question remains, how long can the radical element in music exist before either fading into obscurity or being modified to suit

[12] Paddison 1982, p. 215.
[13] Delville, M. 2013. 'Zappa and the Avant-Garde: Artifice/Absorption/Expression', in Carr, P. (ed.) *Frank Zappa and the And*. Surrey: Ashgate, pp. 185-199.
[14] Watson 1994, p. 67.

popular consumption and therefore subject to the machinations of market forces? In his conclusion, Paddison concedes that the argument has come full circle, it arrives where it left off; that Adorno's realisation of the fate of avant-garde music is its inevitable submersion in consumerist society. However, if as Paddison argues, there is the potential for radicalism to exist, albeit temporarily in popular music, Zappa's position is complex for other reasons.

Entertainment and Serious Art

David Wragg in '"Or any art at all?': Frank Zappa meets critical theory" (2001), addresses the problematic elements pertaining to Zappa's tendency to deconstruct and decontextualize and how this has the potential to cause conflict with the composer's location within the entertainment industry. Moreover, Zappa's preference to refer to his work merely as 'entertainment' places him in an awkward position if we accept the limitations of entertainment in popular culture. The aspiration to formulate an avant-garde type of music appears self-defeating by reducing it solely to entertainment. In order to investigate this dichotomy, Wragg attempts to place Zappa somewhere between Adorno's perspective on modern culture and Walter Benjamin's potential for mechanically reproduced art. Similarities to Adorno are illustrated by citation of selected Zappa interviews that are reminiscent in tone of the former's views on modern culture. The concurrence is essentially the means-end thinking of music as product and is exemplified by deconstructing the entertainment industry in an attempt to reveal the insincerity of its performers and the machinery that supports them. However, if the entertainment industry is depicted as such, we are confronted with a performative contradiction. How can Zappa criticise that to which he belongs? Therefore, from the Adornian perspective, Wragg sees Zappa's position as complex. The irreducibility of the 'at variance' of affirmation and refutation within the context of the avant-garde and entertainment simultaneity,

delimits the interpretation of the experimental or visionary aspects of the music. It is at this pivotal phase where Wragg introduces Benjamin.

In reference to Brechtian drama, Benjamin considered the transformation of theatre as providing the means by which an audience could be more critically participative.[15] According to Middleton (1990), "[t]heatre becomes an experimental, analytical experience, in which the audience, detached from the narrative, is prevented from identifying, forced to evaluate, to think – hence to participate".[16] To neutralise the reductive conflict in Zappa, Wragg establishes a parallel with Benjamin whose, "disagreements with Adorno on the critical potential of film are relevant to developments in the technologies used to produce 'popular' music".[17] Benjamin, in his essay "The Work of Art in the Age of Mechanical Reproduction" (1936), a political examination of the mechanical reproduction of art in film and photography, suggests that film has the ability to enhance our perception and facilitate critical receptivity. In contrast to Adorno's less optimistic views on mechanical reproduction, Wragg through Benjamin, asserts that a product of technology, in this case 'film', has the capacity to intervene and can momentarily transcend rationalism and evoke collective experience and awareness. Similarly, Zappa's instrument of technology was the recording studio, and it is through this medium reconstituted material using montage techniques could manifest into signs which carried enough significance to arouse critical modes of reception.

> Zappa's own practice of using the recording studio to (re)compose pre-given materials indicates how reception can intervene in 'entertainment'. While insisting on entertainment's pervasiveness, Zappa brings together critical principles drawn from Dada, Brecht and Benjamin. In so doing, his work actually exemplifies a tension between the closures of Adorno on production and the critical possibilities of reception.[18]

The correlation with Zappa is useful as it forms a parallel and to some extent momentarily disengages Wragg's conflict. It demonstrates what the author expresses as the virtues of the

[15] Brecht, B. 1964. *Brecht on Theatre: The Development of an Aesthetic*. Edited and translated by John Willet. New York: Hill and Wang.
[16] Middleton, R. 1990. *Studying Popular Music*. Milton Keynes: Open University Press.
[17] Wragg, 2001.
[18] Ibid.

effective avant-garde which "engages with, and intervenes in, pre-existing signifiers of social reality in order to reconstruct…ideological messages".[19] Thus, a common process of demystification that exists in Zappa's work which avoids positive conclusions or aesthetically pleasing outcomes much in the same way as Brecht.

> Here there is to be no emotional payback from climactic catharsis; instead comedy, song, music, choruses and recited stage directions are deployed to stimulate the audience into thinking for themselves, and so to take a critical stance of the actions presented.[20]

To question the longevity of radical popular music or address the Zappa conflict via the Adorno-Benjamin debate illuminates interesting aspects of the composer, yet seems to narrow the potential for radicalism or avant-garde tendencies within the culture industry to manifest in other ways. Middleton (1990) states that the Adornian dichotomy of 'commercial manipulation' and avant-garde 'authenticity' is misleading and the constrictive view that the latter cannot exist with the former leaves little room for manoeuvre. In a way, it also misses the point, as the very essence of the composer and his work and all the inner components cannot be reduced to a single framework, as Volgsten (1999/2009) describes, "[Zappa's] inconsistent thinking on various political and musical matters can be seen as being held together, without thereby being unified". Chastagner (2013) offers insight into the potential for non-compliancy as a form of resistance, which would interject the complexities investigated by both Paddison and Wragg, alluding to the fact that resistance is a condition that can be interpreted in a less complicated manner. The implication is that non-conformity is not bound to overt affirmation or seditious behaviour, but can be seen as a means of simply questioning and inciting a reinterpretation of the world. Deconstructionism is one of the ways in which Zappa has engaged with music and socio-politics, a less ideological form of resistance, challenging those who feel it necessary to reduce his position to a formal logic. Chastagner's deduction alleviates itself of

[19] Ibid.
[20] Awde, N. 2013. 'Zappa and Satire: From Conceptual Absurdism to the Perversity of Politics', in Carr, P. (ed.) *Frank Zappa and the And*. Surrey: Ashgate, pp. 85-101.

the complexities that abound by attempting to homogenise Zappa and his work, offering instead an acute and accurate interpretation of the composer which is simply observational.

> And it is precisely the pleasure he derives from being simultaneously serious and entertaining, an erudite and a buffoon, that signals his resistance. Zappa's resistance consists in being as much in the avant-garde as in pop music, in articulate, social criticism as in vulgarity. His resistance consists in unfettering himself from any kind of codes, be it those of show business, the Moral Majority, or the New Left, and in avoiding the pitfalls of elitism and populism by belonging to both. Zappa's resistance could thus be defined as a form of subversion and infiltration.[21]

Anti-Orchestra

Although Adorno seems to ever permeate the literary texts on Zappa, Arved Ashby in "Frank Zappa and the Anti-Fetishist Orchestra" (1999) sets out to demonstrate how the composer deconstructs musical and social ideals in relation to the orchestra. This is accomplished by the avoidance of 'hyper doubling' with its supposed inherent evocation of the sublime. Ashby defines the hyper doubling process as such, "[it] serves as the sonic foundation for the symphonic and the sublime… but also a sonic basis for the fetishistic abstraction of labor and use in orchestral music".[22] The analogy is made pertinent to the Marxist idea of 'abstraction from labour' where the fetishizing of the exterior presentational is removed from the actual labour involved in its production, and the 'orchestral sublime' which in Ashby's view, also represents a form of abstraction from labour. The connoted significance is the aggrandisement of the orchestra functioning as an idealistic transcendental, which is essentially a late 18th and early 19th century conceit.

Ashby illustrates a number of correlations with the hyper doubling process which are psychoacoustic, cultural, stylistic and socio-economic, but the main thrust of the argument is congruent with Marx's 'commodity fetishism'. With this in mind, the author looks at a variety of orchestral or 'anti-orchestral' attributes in "Sinister Footwear", "Envelopes" and "Strictly

[21] Chastagner, C. 2013. 'Zappa and Resistance: The Pleasure Principle', in Carr, P. (ed.) *Frank Zappa and the And*. Surrey: Ashgate, pp. 103-116.
[22] Ashby, A. 1999. 'Frank Zappa and the Anti-Fetishist Orchestra', *The Musical Quarterly* 83(4), pp. 557-606.

Genteel" and demonstrates the repudiation of conventional norms in Zappa's 'anti-doubling'. In this context 'anti-doubling' is not the preclusion of doubling as such but is distinguished by its avoidance of subsumption within multiple instruments which share the unison relationship personifying the sheen of bourgeois conformity and the grandiose of the symphonic orchestra. Instead, doubling occurs in a more unorthodox manner, where a single melody is doubled or 'hyper-doubled' in unison or at the octave; the essential difference lies in the combination of instruments and how Zappa exploits the timbral qualities of each so that it is not enveloped sonically within multiple instances of itself. The uncommon combinations and individualistic features of instruments with intended permeation create an anti-orchestral aesthetic. Ashby states, "[t]his is ensemble music that tries to return the listener to a long lost musical practice and culture founded on use value, that tries to unmask musicians' labor", hence the further reinforcement of the abstract from labour analogy.[23] In terms of 'anti-orchestration', Ashby refers to Zappa's practice of deploying guitar-like melodies to orchestral instruments and how the composer attempts to overcome some of the mechanical differences. In particular, "Envelopes" where ornamentations in the melody emulate articulation characteristics of the guitar and in "Sinister Footwear - Third Movement", an orchestral reproduction of a guitar solo performed by Zappa in 1978. The 'Anti-Fetish' is not exclusive to music but extends into other facets of the orchestra such as Zappa's penchant for describing orchestral musicians in anthropological terms and the difficulties he had experienced, which was a recurring theme throughout his career; the perennial clash of interests between composer and orchestra.[24]

[23] Ibid.

[24] Zappa discusses the anthropology of the orchestra in Chapter 8 'All About Music' in *The Real Frank Zappa Book*, 1989.

The Big Note

Edited by Paul Carr, *Frank Zappa and the And* (2013) is a collection of short essays from various academics who examine Zappa's connection with religion, movies, studio editing, and technology. The essays provide interpretations of the composer and his work, some of which I have already mentioned in support of discussions presented hitherto. In the introduction, "The Big Note, Xenochrony and All Things Contextual", Carr gives an overview of some of the important factors for consideration such as the sign, where a network of semiological meaning is revealed across Zappa's work; a process providing the audience with a variety of clues by which to cross reference multiple narratives. Elsewhere, the philosophical ramifications of *The Big Note* are paralleled with the theoretical postulate that air molecules resonate from the residue of the 'fundamental cosmic tone' and the behaviour thereof is determined by the type of sound inflicted upon them, a theory Carr is apt to address because of its importance to the overall concept of the work.

> [Zappa's] practice of developing individual compositions over many years…does resonate with a musical-perdurantist perspective: where musical works are seen to exist atemporally – obtaining their ontological status from what Caplin and Matheson describe as a 'fusion of performances' – with individual performances being regarded as 'temporal parts' of an ongoing musical work.[25]

A further illustration of *The Big Note*, of which contained therein are concerts, interviews, societal observations and other artefacts, is given by Volgsten who states that "all [Zappa's] music exists all the time, as one single Big Note… [i]t contains still and on the same level his entire output and the individual material".[26] And so, we might add, positioned within *The Big Note* theory is the *Project/Object* where any categorical event exists as a duality of the parts and the whole. Essentially, the whole output is disseminated, loaded with information which depending on the listener can be decoded and reified to bind the elements. What Zappa achieves

[25] Carr, P. 2013. *Frank Zappa and the And*. Ed. Paul Carr, Surrey: Ashgate.
[26] Volgsten, U. 1999/2009. *Music, Mind and the Serious Zappa, The Passions of a Virtual Listener*. PhD Diss. Stockholm University.

by this is, “an endlessly self-referential and edgeless fabric” which expresses, “his theory that all events in time happen simultaneously”.[27]

Other important research and publications include, Ulrik Volgsten’s “Music, Mind, and the Serious Zappa, The Passions of a Virtual Listener” (1999/2009), an extensive discourse on the extent of which language affects our experience of music and how passions aroused by the music is ideologically determined. The idea is developed and then applied to the ‘virtual listener’s’ experience of Zappa’s ‘serious’ music. Clarke (1999) explores in “Magdelena” how perceptual invariants can function within the context of subject-position (the way a listener’s response is directed by the inherent elements of the artistic work). The underlying basis of the aforementioned literature is that it represents ideas related to Zappa which are engaged with a variety of theories that are interdisciplinary and textual. Although my acknowledgement is cursory and the list of available articles, dissertations and books is incomplete, the range is exemplary of the literature over music notational analysis imbalance, as we shall see.

Literature over Music Analysis

There are a number of reasons for the disparity between textual and music notational research, and I shall outline what I consider to be two of the more significant. The first one can be attributed to the difficulty of obtaining Zappa’s orchestral scores, at present, the only way to acquire them is by hire through a music publishing company. Perhaps in the future, study scores might become available which would most certainly aid the analyst in exploring Zappa’s music in a more accessible way. The second, is equally problematic but far more contentious. The structural based analysis of music has for many years been deemed by some New Musicologists as inadequate. It is seen as failing to determine the receptivity of music in a more pluralistic

[27] Seal, K. 2013. ‘Zappa and Religion: Music is the Best’, in Carr, P (ed.) *Frank Zappa and the And*. Surrey: Ashgate, pp. 49-65.

way where meaning in music is of greater importance. Although, certain elements which exist under the umbrella of new musicology have merits, I contend that structural analysis is just as important for revealing information about the construction of the music. Therefore, in the subsequent chapters, I rely more on structural analysis since my intention is to contribute to a better understanding of how the composer constructed his music and not on how it is perceived, at least not until chapter 8.

I shall now examine the existing music analytical work and evaluate its importance in exposing compositional traits of the composer. Analysing Zappa's music is not without significant challenges as his music does not easily collude with any one specific formula of music analysis. Lerdahl (1989) in expressing what he sees as the "theorists' nightmare" draws our attention to Schoenberg's confession that in his first atonal works, harmonies were composed more or less instinctively, that is "coherence in the face of no theory".[28] However, this should not necessarily be as problematic as Lerdahl suggests since multiple theories can be applied in various ways and in some cases yield interesting results. Realistically, this has to be the tenet for the analyst as approaching the music with expectations of distant goals that unfold partially or across the entire duration of a given piece would be futile.

Clement's Seminal Work

The most notable and significant musical analytic work on Zappa has been carried out by Brett Clement, who has examined and presented with great clarity important characteristics of Zappa's music. In his article "A New Lydian Theory for Frank Zappa's Modal Music" (2014) Clement applies aspects of George Russell's *Lydian Chromatic Concept* (1953) to Zappa's diatonic pieces. Russell contended that the Lydian scale is a "self-organized *Unity* in relation

[28] Lerdahl, F. 1989. 'Atonal Prolongational Structure', *Contemporary Music Review* 4(1), pp. 65-87.

to its tonic tone and tonic major chord".[29] The idea is that the Lydian scale has fewer tendencies toward resolution which is the antithesis of the major scale with its more 'goal orientated' inclinations.[30] In his initial discussion of the *LCC*, Russell shows that the harmonic structure and derivative chord grammar of the major scale reverses the natural order of the overtone series by placing importance on the fourth instead of the natural occurring fifth. Therefore, Russsell assigns the perfect fourth in the major scale to the tonic, where in C major, F would be considered the root. This is a delineation not far removed from Hindemith's concept of interval roots where the lower note in a perfect fifth is considered the root while in a perfect fourth it is in the upper note.[31] In terms of the *LCC* this is important because Russell explains that if we stack perfect fifths of a Lydian scale we get six perfect fifths, however if we follow the same procedure for the major scale, only five perfect fifths prevail with the top interval consisting of an augmented fourth, the tonal gravity is consequently disrupted. Therefore tonicizing the Lydian mode is a more effective approach as one is not bound to the dictates of functional harmony. And since much of Zappa's diatonic music utilises the Lydian mode it makes sense to think of it as the parent scale. Clement aligns elements of the *LCC* with the diatonic pieces by describing 'three texturally stratified zones' illuminating Zappa's tendency for melodic and harmonic ambiguity. First is the 'melodic' where a melody is refrained from implying a tonic note, providing for a more emancipatory melody. The second is 'harmonic' generally consisting of 3-note chords with no root, and the third is 'pedal' which is the drone-like bass.[32] Clement is apt to apply this concept to the diatonic pieces, firstly because Russell

[29] Russell, G. 2001. *Lydian Chromatic Concept of Tonal Organization*. 4th ed. Massachusetts: Concept Publishing Company.
[30] Goal orientation refers to the major scale's inherent consonance and dissonance; for instance, the perceived impulse for the (V) to resolve to the (I) chord.
[31] Hindemith, P. 1984. *The Craft of Musical Composition, Book 1: Theory*. 4th edn. London: Schott Music Ltd.
[32] Clement, B. 2014. 'A New Lydian Theory for Frank Zappa's Modal Music', *Music Theory Spectrum*, 36(1), pp. 146-66.

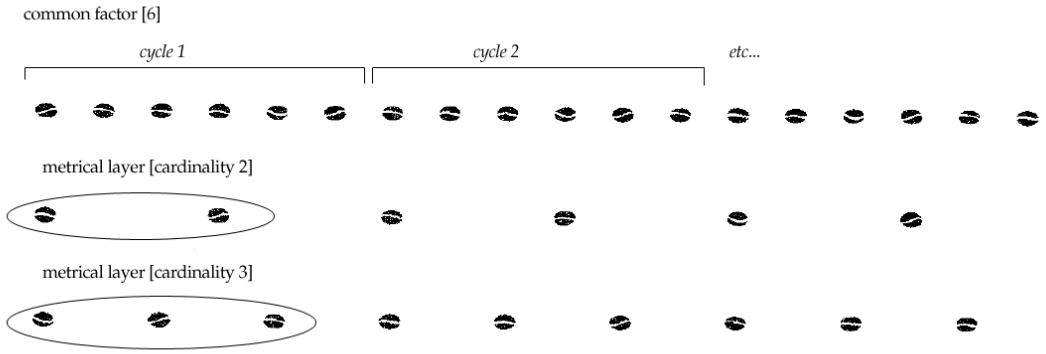
refutes the status of the major scale and its chordal consequents with their functional harmony impulses, and secondly because Zappa shared a similar refutation.

> The contemporary 'harmony textbook' is the embodiment of those evils, in catalog form. When I was handed my first book and told to do the exercises, I hated the sound of the 'sample passages'. I studied them anyway. If something is hateful, you should at least know what it is you're hating so you can avoid it in the future. Many compositions that have been accepted as "GREAT ART" through the years reek of these hateful practices. For example, the rule of harmony that says: The second degree of the scale should go to the fifth degree of the scale, which should go to the first degree of the scale [II-V-I].[33]

In terms of rhythm, Clement adopts some of the analytic techniques employed in *Fantasy Pieces – Metrical Dissonance in the work of Robert Schumann* by Harald Krebs (1999). Essentially, the work is an exposition of the interactive layers within a metric schema where pulses inherent of each layer create metrical consonance or dissonance. Metrical consonance is present when a group of layers coincide and are related by common or multiple factors. While metrical dissonance, a more common element in Zappa's music, is a group of layers that do not share common or multiple factors. This is explored in Clement's thesis "A Study of the Instrumental Music of Frank Zappa" (2009).

There are two basic types of metrical dissonance, one is 'grouping' and the other 'displacement'. A *grouping dissonance* is exemplified by layers interacting with cardinalities of 3 and 2 for instance, and a *displacement dissonance* is congruent layers commencing at different positions in the music. According to Krebs (1999), even though in a *grouping dissonance*, two conflicting metrical layers exist, non-alignment of the layers will continue until a full cycle is reached, that is alignment will eventually occur at some point, unlike *displacement dissonance* where alignment never occurs.[34] For instance, the label 'G3/2' denotes a *grouping dissonance* of metrical layers 3 against 2 which remains non-aligned until the two rhythmic units meet and the cycle begins again.

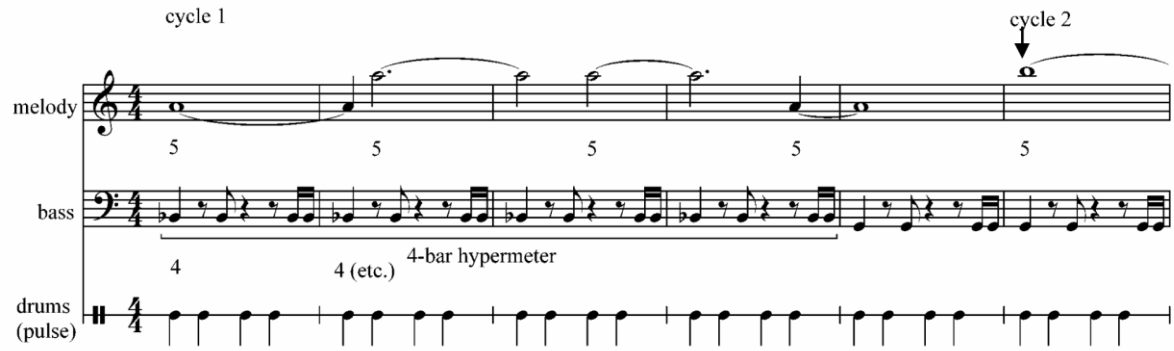
[33] Zappa, Frank & Peter Occhiogrosso. 1989. *The Real Frank Zappa Book*. London: Pan Books Ltd.
[34] Krebs, H. 1999. *Fantasy Pieces – Metrical Dissonance in the Music of Robert Schumann*. New York: Oxford University Press.



EXAMPLE 1.1. Krebs 1999, figure 2.1(b), p. 32.

In examining some notable Zappa pieces, Clement takes the concept and applies it to "The Black Page#2" where 'G5/4' is identified.

"The Black Page #2" (*Zappa in New York* 2:02–2:24): metrical dissonance G5/4.



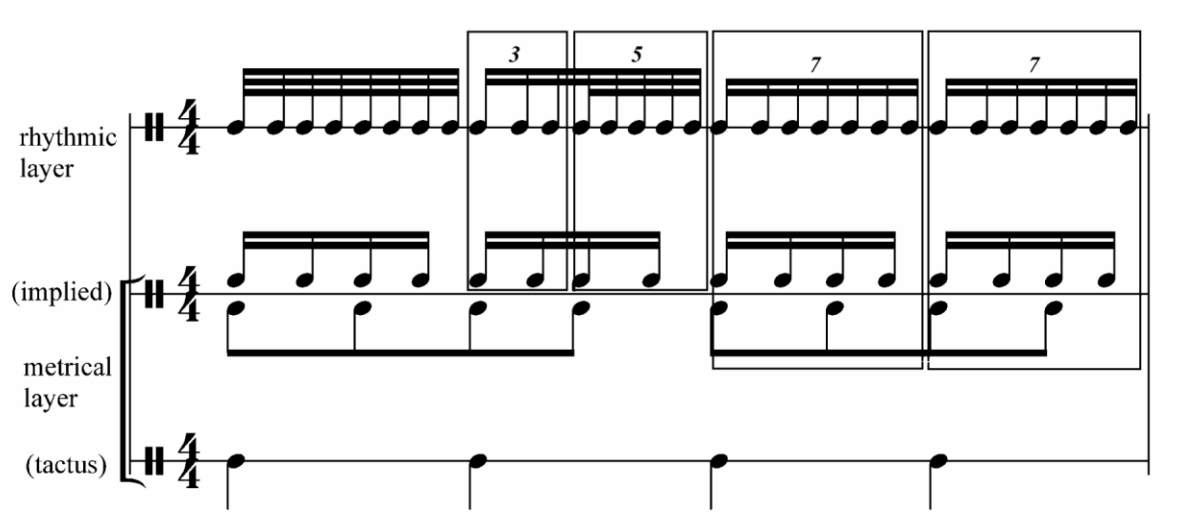
EXAMPLE 1.2. Clement 2009, ex. 3.10, p. 278.

Krebs's theory is predominantly concerned with multiple interacting metric layers and therefore to some extent conflicts with the idea of mutual exclusivity of meter and rhythm. And as already mentioned, even though metrical dissonance is relatively a more common feature in Zappa's music it would be tenuous to apply the term to the greater body of work. So the purely metrical approach does not fulfil its purpose in the larger part of Zappa's oeuvre. Clement in citing Cooper and Meyer who suggest that rhythm can be at odds with meter, explains that,

"for the listener to maintain a meter in the face of rhythms that do not enforce the meter, there must exist a gulf between the two concepts", basically there are limitations to the application of metrical analysis.[35]

While acknowledging the benefit of Krebs's theory, Clement argues that in Zappa's music the rhythmic unit against meter needs particular attention. Rhythmic dissonance is a departure from the metrical layer concept and Clement contends there is a wider repertoire which seems to align more with rhythmic dissonance. Since a distinction is made, *metrical layer* refers to the clear metric pulse in the accompaniment and *rhythmic layer* corresponds to the superimposition of rhythm over meter, thereafter a division between the two is made. The exploration of this concept presents some crucial observations in terms of how meter and rhythm interact in Zappa's music. For example, in an extract from "The Black Page #1" there is a crotchet note tactus in the drums and a semibreve in the bass (the latter not shown in diagram below) layered against a tempo of 60BPM. The rhythmic groupings in this particular bar do not exceed a length (L) of 1, which means that each rhythmic grouping is consonant with the crotchet note pulse layer. However, after London (2004) cited by Clement, most listeners will tend to infer a subdivision to compensate for the slow tactus in order to maximise pulse salience.[36] In the diagram below the 'implied' meter shows quavers and semi-quavers where the rhythmic groupings dissonant to it are boxed, the interpolation at the subtactus level is fundamental in establishing rhythmic dissonance in this particular extract.

[35] Clement, B. 2009. *A Study of the Instrumental Music of Frank Zappa*. PhD Diss. University of Cincinnati.
[36] London, J. 2004. *Hearing in Time: Psychological Aspects of Musical Meter*. New York: Oxford University Press.

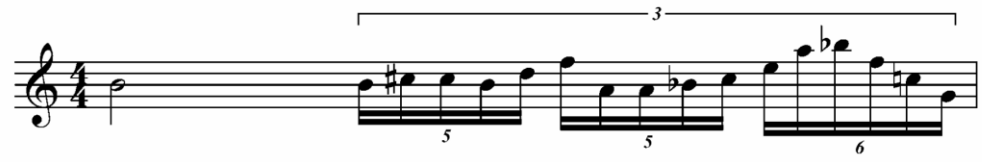


EXAMPLE 1.3. "The Black Page #1" b. 4: resulting rhythmic dissonances"" Clement 2009, ex. 3.24, p. 287.

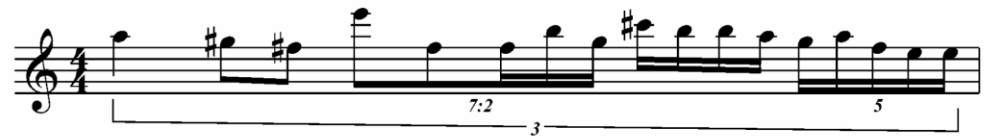
Other examples show less potential for pulse alignment in the tactus or as subtactus inference. In bars 5 and 15 of "The Black Page #1" there are nested tuplets which do not coincide with any pulses of the metric layer (ex. 1.4). The subdivisions in b. 5 create a ratio of 3:2, but within that ratio are further subdivisions where on each crotchet note triplet are two semi-quaver quintuplets and a sextuplet respectively. This concept is extended in b. 15 with a ratio of 3:2 with 3 minims in the time of 2 spread across the entire bar with inner groupings further subdividing the 3:2 ratio. These rhythms are salient examples of the challenges purely metrical interpretations of the music present because the fluctuating rhythms do not establish an isochronous pulse layer against the metric, which is an essential criterion for Krebs's theory.

"The Black Page #1": nested dissonances.

(a) m. 5 (*Zappa in New York* 2:08–2:12)



(b) m. 15 (2:47–2:51)

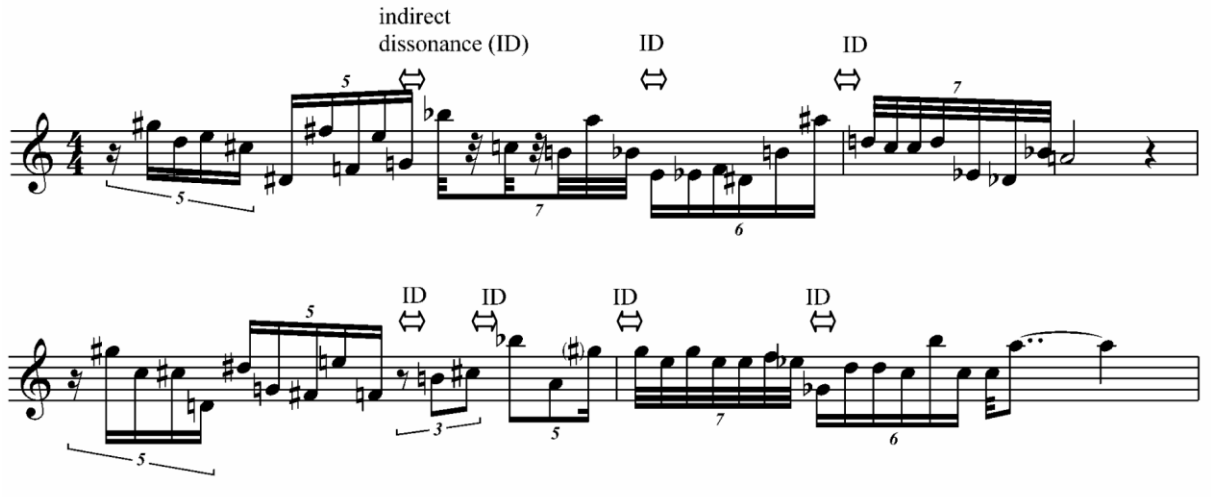


EXAMPLE 1.4. Clement 2009, ex. 3.25, p. 287.

Further investigative work on rhythm shows a modified function of Krebs's *indirect dissonance* where its application to meter is now adapted to the rhythmic layer. We should observe that Krebs's meaning of indirect dissonance is "our tendency as listeners to maintain an established pulse for a short time after it is discontinued in actuality".[37] Essentially, *indirect dissonance* exhibits our ability to retain a metrical layer for a short while after it has been usurped by another, facilitating the perception of metrical conflict. This idea however is not immediately transferable to the domain of rhythmic dissonance as Clement explains, "in the context of rhythmic [indirect] dissonance, one layer, namely the metrical layer, is always constant, while juxtaposition occurs in the rhythmic layer".[38] Since the metric layer remains constant with conflicting activity now taking place in the rhythm, there is less importance placed on retention of a referent for other 'rhythmic activity'. What is now important is the changing IOI (inter onset interval) in the rhythmic layer.

[37] Krebs 1999, p. 45.
[38] Clement 2009, p. 81.

"Be-Bop Tango" mm. 31–34 (*Roxy & Elsewhere* 2:40–2:50).



EXAMPLE 1.5. Clement 2009, ex. 3.32, p. 292.

The IOI is constantly changing in the "Be-Bop Tango" extract above, fluctuating IOIs create a kind of disorientation and is an example of rhythmic flux causing microcosmic acceleration and deceleration. This is a very common trait found in much of Zappa's music to the extent that it is standard procedure. It was of prime concern for Zappa to ensure that rhythmic irregularity was perceived to be determined as such with no sense of ambiguity of its application. And the best way for this to be achieved was for the rhythms to be staged against a consonant metrical pulse.

> [T]here is a clock inside your body that's saying, "We're in 4/4". And somebody plays nine across it, and inside your body you hear the difference, and that's part of the excitement of that kind of rhythm. You know, it's the difference between what you hear and what you expect to hear that makes the excitement.[39]

So, in order to perceive the dissonance there must be a primary pulse by which the dissonance can be measured, otherwise as Zappa has stated one is "wallowing in rubato".[40] One uncertainty of Clement's take on rhythmic analysis is that he uses Krebs primarily as a yardstick by which

[39] Zappa, F. 1983. 'Non-Foods: Coming to Grips with Polyrhythms', *Guitar Player*, 17(4), p. 101.
[40] Zappa 1989, p. 181.

to measure Zappa's use of rhythm. In most cases it turns out that Krebs's theory is unsuitable for Zappa's music. Clement presents a type of rhythmic analysis and contrasts the conflict in Zappa's music against it. However, maybe this is Clement's point; that Zappa's rhythms are difficult to determine in a systematic way.

Another important exposition in Clement's research is the *Chord Bible* which is a collection of chords that were categorised and formulised by Zappa for extended use in predominantly orchestral compositions. The initiative in pursuing this solely from a brief explanatory comment Zappa made in an interview is resourceful to say the least. Clement has extrapolated this evidence to shed light on an important compositional method. This is significant, simply because the composer seldom revealed any specific procedures of orchestral writing. In the interview, Zappa described a compilation of chords with different cardinalities from three to eight containing non-repeating notes.[41] The intervallic structure of the chords is designated to different groups, ordered by the size of the uppermost interval in the chord, starting from a minor second to a minor ninth. This is essentially a classificatory group of the composer's favourite chords which Clement has suggested were in operation circa 1977-1982. Since the *Chord Bible* is not actually a readily available exposition on chord theory, Clement has meticulously studied pieces which employ chords essentially containing the intervallic structure mentioned by Zappa as a basis from which to set out a simple catalogue of chords.

What constitutes qualification for one of these chords is based on its prevalence in a given piece that predominates in using the specific intervallic structure. A chord is considered to have *CB* status if it has the intervallic structure mentioned from the cited interview (see below); the (E-F-A-C-D-G-B) chord is constructed of the following intervals (1, 4, 3, 2, 5, 4) and the (C-E-B-F#-G-D-A) of (4, 7, 7, 1, 7, 7). Therefore, those two chords are considered to be derived from the *CB*.

[41] Spurrier, J. 1987. 'Zappa on Jazz from Hell', *Music & Sound Output*, pp.24-28, 72, 76.

> [T]he stuff that I'm working with now is seven-part harmony – with no notes doubled. And most of the orchestra stuff is based on that. In other words, if you take any kind of a diatonic scale, it contains seven notes, and there are ways of spacing those seven notes so that at all times you're playing the entire scale…Want to hear an example? I'll play you a beautiful seven-note chord [goes to the piano]. If you take a C major scale, it sounds like this. You have a certain number of mathematical possibilities of how you space those things out to get a chord. This chord is made up of all the notes in that scale: [plays chord]. That's spread out over an octave and a fifth. See, it's spelled E-F-A-C-D-G-B. The other thing I worked out is chords built in fifths. You build fifths plus one third, and that will also give you seven notes. Here's an example. That's C-E-B-F#-G-D-A.[42]

Clement introduces the term "density" which is used as a label for the chords, for example D(4, 7, 7, 1, 7, 7). The author explains that the term refers to the pitch-space realisation of a given chord and that, "Zappa himself used this term (perhaps as a light homage to Varese's Density 21.5 for Solo Flute (1936))."[43] The chords identified in the selected pieces do not always adhere to the exact intervallic structure already mentioned, however, further deductions have been made that relate to other attributes discussed by the composer.

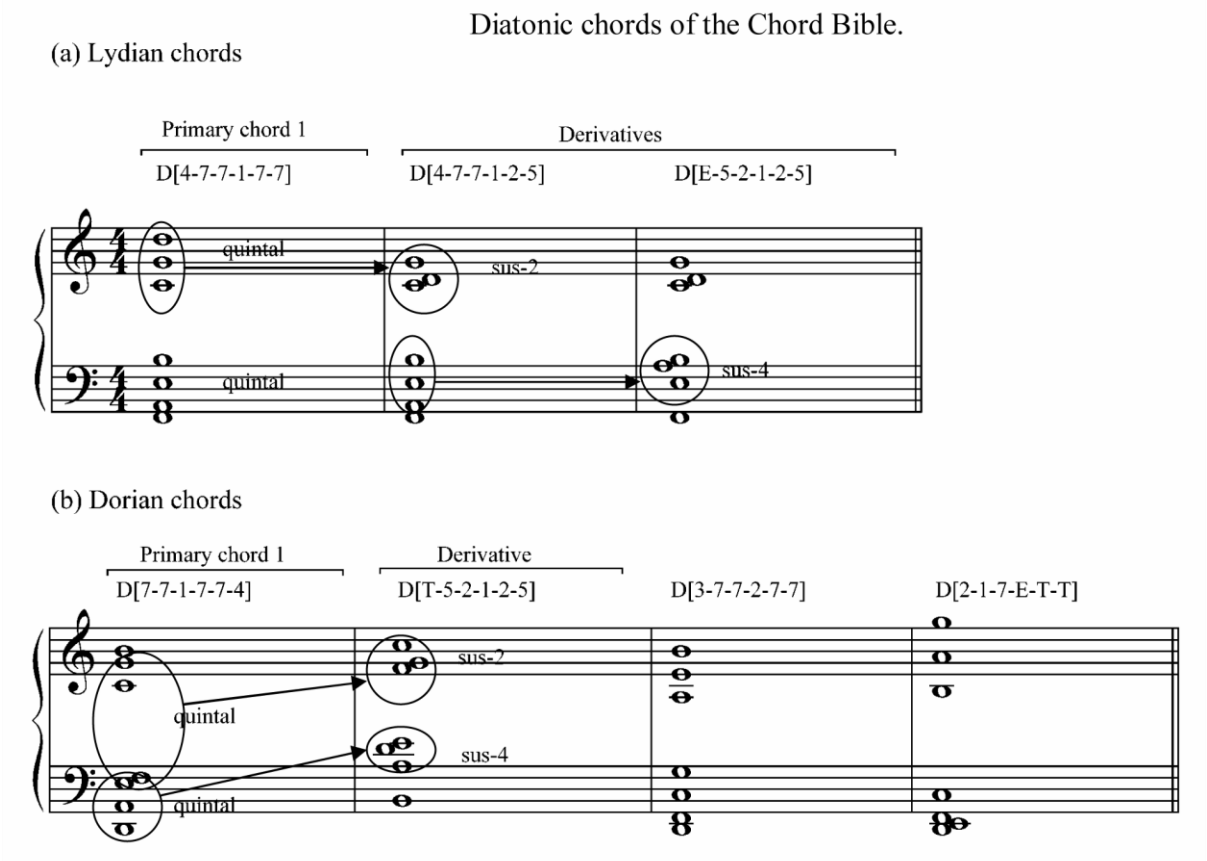
> Every composer has notes, chords, and rhythms that he likes to hear. Some people keep it all in their head and some people will jot down little sketches. Several years ago I made a classification of all of my favorite chords plus the order in which I preferred to hear the pitches in the chord arpeggiated. It's all broken down from three-note, four-note, five-note, six-note, eight-note chords. The chords are in different classifications, starting with those chords that have a minor second as the uppermost interval, major second, minor third, blah blah blah, all the way down to the fewest chords that have a minor ninth as the upper interval of the chord. There are real dense voiced chords and chords that cover four or five octaves.[44]

Even though Zappa mentioned chords starting from three notes, it is the higher cardinalities that are of interest to Clement purely for the fact that the orchestral pieces he chooses to study contain seven and eight note chords. The increasing distance between the upper two voices of any given density is also a consideration in terms of whether voices within the density are close knit or spread out over a wide register. The strategy also provides a useful and orderly way to catalogue *CB* densities, where chords are ordered from the smallest intervallic distance in the two top voices to the widest.

---

[42] Forte, D. 1979. 'Zappa', *Musician*, 19, pp. 34-43.
[43] Use of the term 'density' is further justified by citing an interview with guitarist Steve Vai who refers to the moment he sat next to Zappa at an airport where the composer showed Vai some chords, calling them densities. Clement, B. 2009. *A Study of the Instrumental Music of Frank Zappa*. PhD Diss. University of Cincinnati.
[44] Ibid. p. 28.

The scalar resources for the construction of chords from the *Chord Bible* are identified as Lydian, Dorian, Minor Lydian and Octatonic. A catalogue of chords is then presented, their candidature determined by extensive use in the aforementioned compositions under study. Within the catalogue, the first types of chords exemplified are Lydian and Dorian, with the first chord of each labelled "primary chord 1". The justification for this hierarchy is statistical in that "primary chord 1" appears most frequently and that it facilitates smaller derivative chords. Derivations consist of the sus2 and sus4 chords, which feature often in Zappa's diatonic works, here thus illuminating continuity in the use of specific chords for a variety of compositional purposes.



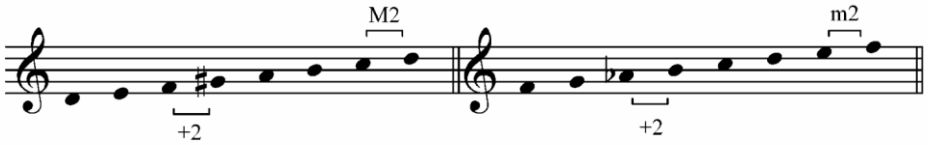
EXAMPLE 1.6. Clement 2009, ex. 5.19, p. 361.

Following on from the diatonic examples is the Minor Lydian, a scale which offers potential for self-contained polytonality where a C minor can be juxtaposed with a D major chord for

example. Clement indicates that this sound is prevalent in Zappa's work from the period under study. In relation to the *Chord Bible*, further cataloguing is presented by a selection of Minor Lydian chords which pertain to Minor Lydian scales (1) and (2), shown in examples below. ML (1) is Dorian with a sharpened fourth, and ML (2) is Lydian with a minor third, contradistinctive by the flattened and natural seventh respectively.

The Minor Lydian scale.

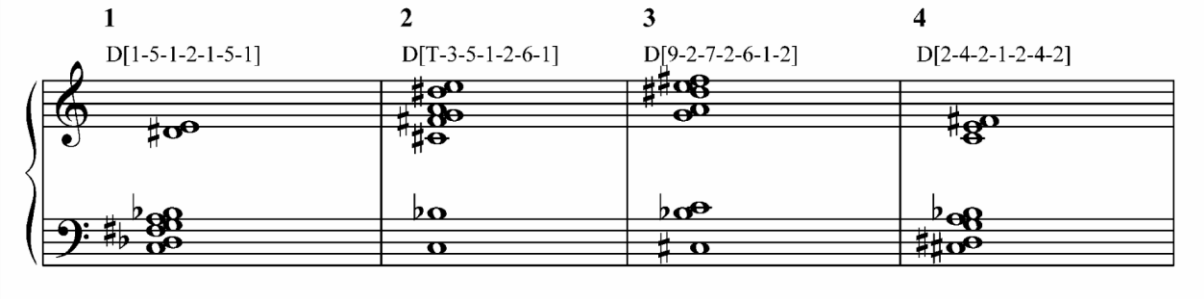
(a) Minor Lydian (1) (b) Minor Lydian (2)



EXAMPLE 1.7. Clement 2009, ex. 5.23, p. 364.

The final stage of investigation is the Octatonic which appears in both "The Perfect Stranger" and "Dupree's Paradise". Clement suggests that the application of this scale in the *CB* context occurred later on in the studied period in order to increase cardinality from seven to eight-note chords. The example below is an extract from 16 Octatonic chordal derivations utilised in the aforementioned pieces. You will notice that the sequence of the chords correspond to Zappa's description of classification in terms of the uppermost interval. In the example, chords 1 and 2 (inversionally related) have ic1 in the top interval (D#-E), followed by chords 3 and 4 (inversionally related) which have ic2 (E-F#). The intervals progressively increase as the chronological sequence of chords is fulfilled up to chord 16. (Chords 5-16 not shown)

Octatonic chords of the Chord Bible.



EXAMPLE 1.8. Clement 2009, ex. 5.29, p. 370.

Clement has set the bar for further investigation of Zappa's music, he has presented the most convincing and lucid analysis of the composer's music with in-depth study and meticulous attention to detail. We have already seen an example of the benefits of some of the work provided by Clement in the implementation of the author's *CB* discoveries in Nguyen's "A Historical Overview, Analysis and Wind Transcription of Frank Zappa's "Sad Jane"" (2012). Nguyen discusses "Sad Jane", and brings to our attention chord formations that are derived from the *CB*. In the analysis of the harmonic structure of "Sad Jane –Movement Two", "primary chords" are presented. As already mentioned, Clement designated certain chords as primary because of their ubiquity and potential for smaller pertinent derivations. Nguyen illustrates that while "Sad Jane – Movement One" delineates a form consisting of repeated melodic statements and *isomelism*, "Sad Jane – Movement Two" is not furnished with those elements as it is an orchestrated guitar solo.

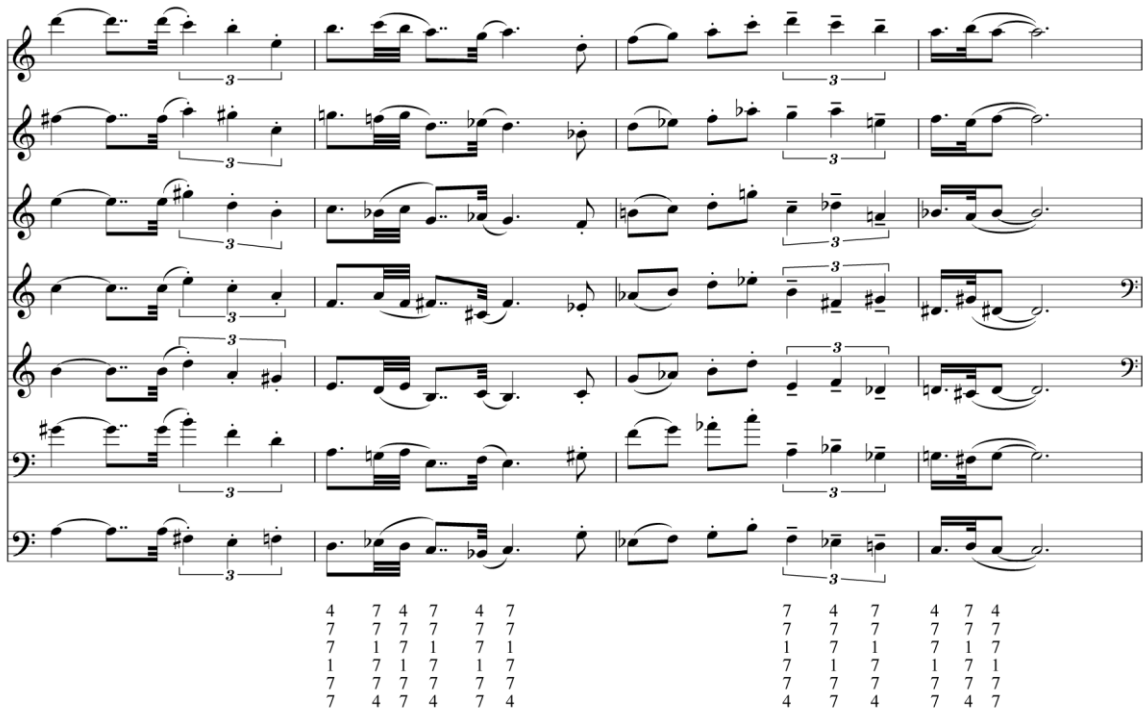
> The last movement of "Sad Jane," kind of a marching thing, is actually a transcription of a guitar solo from the Shrine Auditorium 1968 that Ian Underwood wrote out back then, and I came across one day in a pile of papers. I played it on the piano and liked the tune, and proceeded to orchestrate it.[45]

To overcome the challenges of orchestrating a guitar solo, Nguyen suggests that Zappa employed the *CB,* harmonising the solo with chordal densities. We can observe the seven-note

[45] Zappa, F. 1983. 'Non-Foods: Not the Moody Blues', *Guitar Player*, 17(11), p. 117.

densities that yield the confirmed intervallic structure of *CB* membership.[46] In the extract below, Nguyen has focused exclusively on primary chords 1 of the Lydian and Dorian densities, leaving out a Lydian primary chord 2 derivative on the last quaver of b. 95, which would be spelt D(1, 4, 3, 2, 5, 4). The omission does not create any significant detraction as the purpose here is to show instances of *CB* implementation, and where the Lydian and Dorian chords alternate facilitating contrary motion in some of the inner voices.

"Sad Jane" mm. 94-101. Chord Bible harmonies accompanying the melody.



EXAMPLE 1.9. Nguyen 2012, ex. 3.11, p. 57.

Although Nguyen has utilised the *CB* concept, his analysis is sparse and not as thorough or rigorous as it could be. Notwithstanding, it does point in the right direction for a more convincing analysis of Zappa's chordal densities in the orchestral music.

[46] Forte 1979. In this interview, Zappa described a structure consisting of D(4, 7, 7, 1, 7, 7) spelt as (C-E-B-F#-G-D-A). Clement explicates that along with actual appearances of *Chord Bible* structures in the compositions, the aforementioned structure would be considered a confirmed member of the *Chord Bible*.

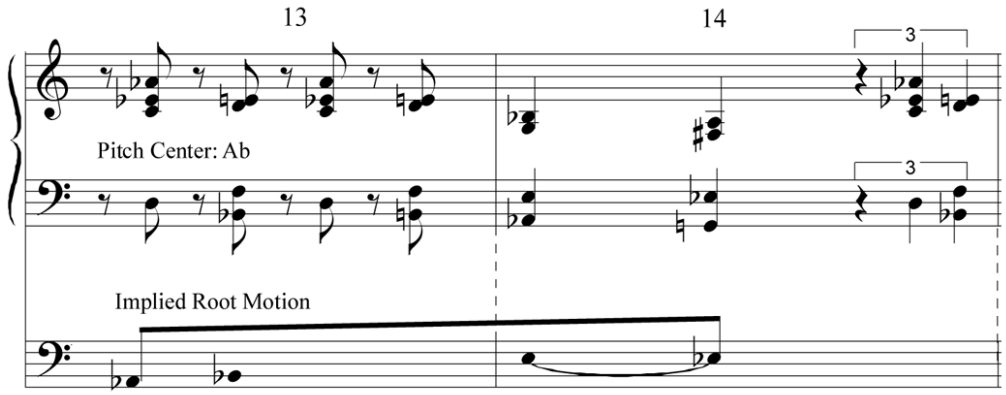
Analytical Problems

Some approaches to the problem of analysis in Zappa are destined to fail in illuminating key factors as to why the music is interesting. In "An Analysis of the Evolution of Frank Zappa's Be-Bop Tango", (2004) William Morris-Price has engaged with a variety of analytical techniques in an attempt to bring comprehension to "Be-Bop Tango".[47] Although the analysis is thorough, there are some inconsistencies in the way certain aspects of the music have been approached, in particular the occasional forced application of functional harmony within a non-functional context. Before we examine that, we should first describe one of the methods Morris-Price has used to approach harmonic analysis of "Be-Bop Tango".

The author has developed a strategy for analysing the chords by creating a harmonic continuum which measures chords from their most consonant to dissonant. Using pitch set theory to reduce the chords to their prime form he uses an interval vector and depending on the types of interval classes inherent of a specific chord determines the quality thereof. Consonant, neutral and dissonant labels are then added to a chord with the respective quality determined by the intervallic strengths, subject to the principles of Paul Hindemith. This is a plausible approach to establishing chord continuity in "Be-Bop Tango" and perhaps the harmonic analysis would have gained more validity if the author had been exclusive with this method. Consequently, the use of functional harmony as another way of analysing the chords is less convincing. The assimilation of aspects of "Be-Bop Tango" into the functional harmony domain appears in the following example.

[47] Price, WM. 2004. 'An Analysis of the Evolution of Frank Zappa's Be-Bop Tango'. PhD Diss. Louisiana State University.

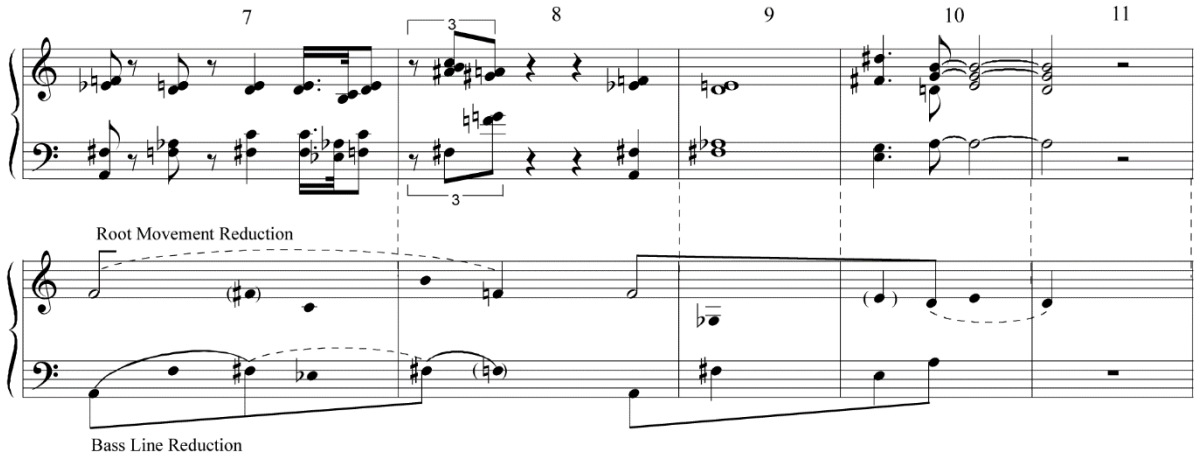
Be-Bop Tango, Variation *A1/a*, Implied Root Motion



EXAMPLE 1.10. Morris-Price 2004, ex. 3.26, p. 154.

In bars 13-14, there is indication of an implied root motion from (Ab) to (Eb), the (Eb) being read as the dominant and 'harmonic goal'. In the second half of beat 1 b. 13, there is, in the soprano, alto and tenor a first inversion Ab major chord, but the (D) natural (augmented 4th) in the bass detracts from the idea of a tonic chord. In addition, the (G) root note on the second beat of bar 14 undermines the stability of this functional harmony interpretation where (Eb) is assumed to be the dominant. And ultimately, the tonic to dominant is certainly not how the music is experienced in the aural. Another illustration of functional harmony imposition is found in the next example.

Be-Bop Tango, Phrase *A/b* and Phrase *A/b'*, Root and Bass Reduction

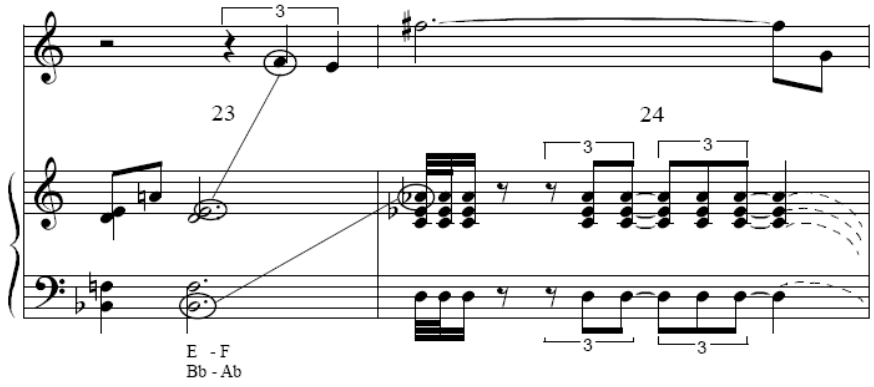


EXAMPLE 1.11. Morris-Price 2004, ex. 3.23, p. 147.

Morris-Price suggests that the bass line reduction here has a tonic to dominant relationship that is the (A) tonic at bar 7 to the (E) dominant at bar 10. This kind of relationship is fraught with difficulty because if we consider the possibility of a tonic to dominant relationship in the chordal sense, the (F#), (Eb) and (F) above the (A) at the beginning of b. 7 are not the most consonant notes to support a tonic chord. The supposed (E) dominant on beat 1 of b. 10 has a (D#) (natural 7^{th}), therefore significantly reducing the potential for a dominant chord. Even if Morris-Price infers the tonic to dominant relationship solely in the bass line, we are still left with a rather ambiguous reduction because without chords supporting a tonic to dominant progression it is a futile observation as we cannot deduce anything from a bass line that goes from a theoretical tonic to dominant. Furthermore, is it necessary to establish a bass line reduction in a piece which clearly has been composed with minimum consideration for root movement? Is it not possible that in the harmony, Zappa is contrasting it with melody, with consideration for the root of a particular collection as a mere afterthought? If so, the melodic and harmonic become insubordinate to any root progression with the emphasis on the chords as texture. The implication here is not necessarily that Zappa had no interest in establishing

root progression of some sort, but I doubt that in a piece such as "Be-Bop Tango" root movement is an important building block, especially functional root movement.

We are faced with another questionable method of analysis in the contrapuntal attention to chords where we encounter further enforcement of traditional voice leading. It would be at odds with Zappa's aesthetic to assume that he used a type of voice leading in the way the author assumes. Even if those practices do occur, we could strongly reason that based on Zappa's opinion of common practice music, instances of it would either be parody or coincidental.[48] Morris-Price has outlined a number of ways the tritone resolution has been used, such as contrary resolution of both notes by a semitone or resolution by a tone or semitone in similar motion for instance. The example below raises a problem; taking into account the potential theoretical validity of the tritone resolution, the resolution itself is so fleeting and virtually indiscernible in the aural that it could hardly be classed as any kind of resolution at all. Herraiz (2010) has clearly identified the problem, bringing our attention to the fact that the supposed (E) resolution to (F) is dubious as the (E) natural continues to be sustained while it has supposed to have resolved to (F), and the (Bb) in the bass resolution to (Ab) in the alto voice is also rather weak.[49]



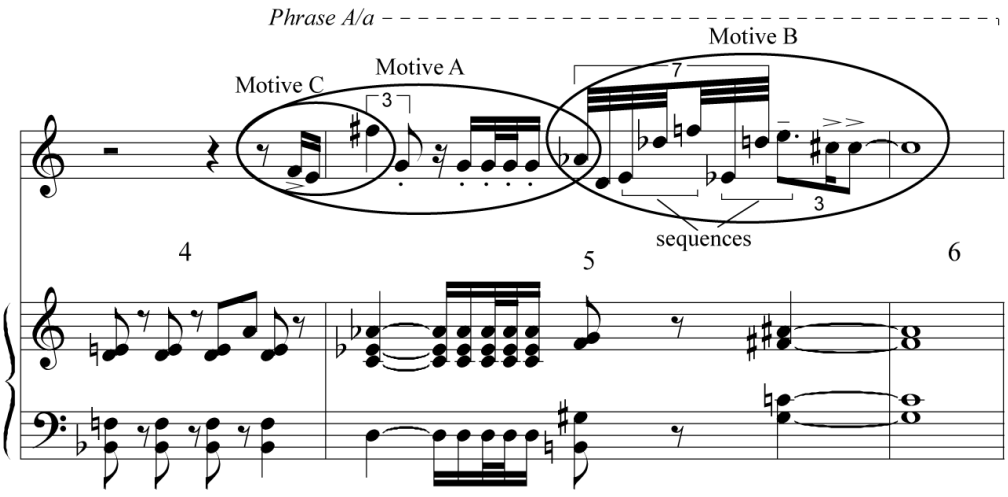
EXAMPLE 1.12. Morris-Price 2004, ex. 3.2b, p. 124.

[48] See Zappa, F. and Occhiogrosso, P. 1989.
[49] Herraiz, M. 2010. *O Estranho Perfeito: A Música Orquestral de Frank Zappa [The Perfect Stranger: The Orchestral Music of Frank Zappa]*. Masters Degree. Brazil: Universidade Estadual Paulista Júlio de Mesquita Filho.

Traces of voice leading can occasionally be found in the foreground and background but forcing traditional contrapuntal analysis is unconvincing especially considering that this technique is rarely found in the greater body of Zappa's music. In these instances, it is as if the author has brought to the analysis a selection of analytic techniques and employed them with limited knowledge of the overall conceptuality of Zappa's works. Bernard cautions about the impracticalities of structural hearing in relation to Zappa by suggesting that it "will only succeed in creating additional difficulties", and that his music, "might well respond…to a different set of criteria".[50]

The analytical inconsistencies found in the harmony are less prevalent in the melodic, and it is here where Morris-Price has recognised some interesting compositional procedures. The melodic content has been divided into theme groups, and for each theme group there are subdivisions. In the main theme group, the subdivisions are motives A, B, and C, and we can see below a dissection of these primary motives.

Be-Bop Tango, Main Theme *A*, Motives A, B, and C

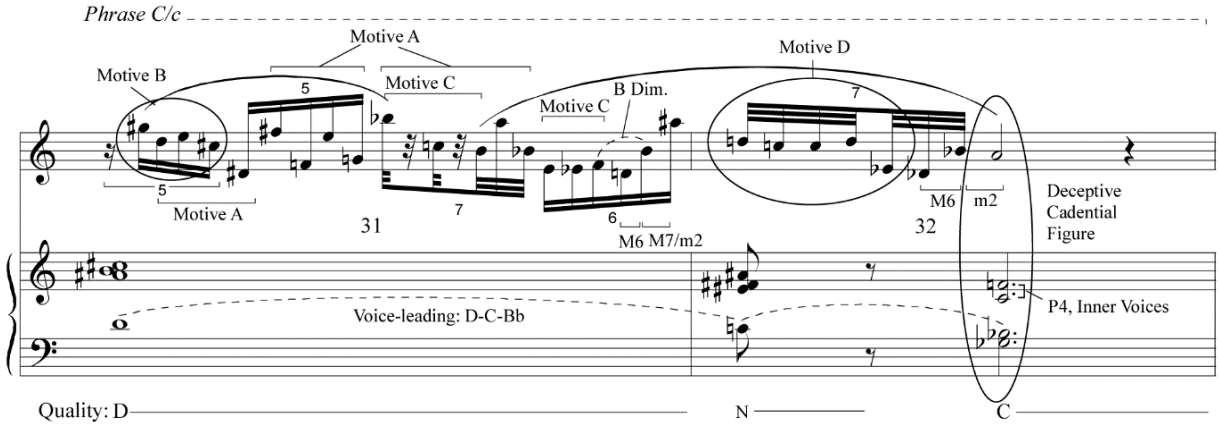


EXAMPLE 1.13. Morris-Price 2004, ex. 3.14, p. 137.

[50] Bernard, JW. 2000. 'Listening to Zappa', *Contemporary Music Review*, 18(4), pp. 63-103.

In the subsequent themes we find smaller subdivisions and variations of the same primary motives. Motivic development is shown to be a major compositional consideration here and its alignment with motivic analysis is less laboured than the author's former analytic approach.

Be-Bop Tango, Theme Group *C*, Phrase *C/c*



EXAMPLE 1.14. Morris-Price 2004, ex. 3.42, p. 172.

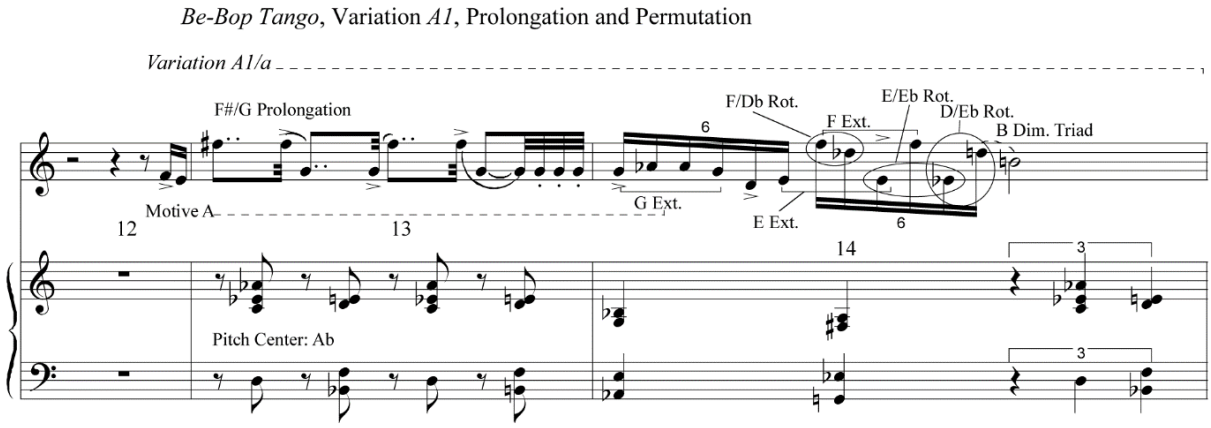
In proceeding with this type of analysis, some of the most significant procedures in Zappa's music have been addressed:

1. Rotation/Permutation procedures
2. Registral displacement
3. Transposition
4. Extension of motivic materials by rhythmic augmentation and diminution
5. And the combination of each of the previous methods.[51]

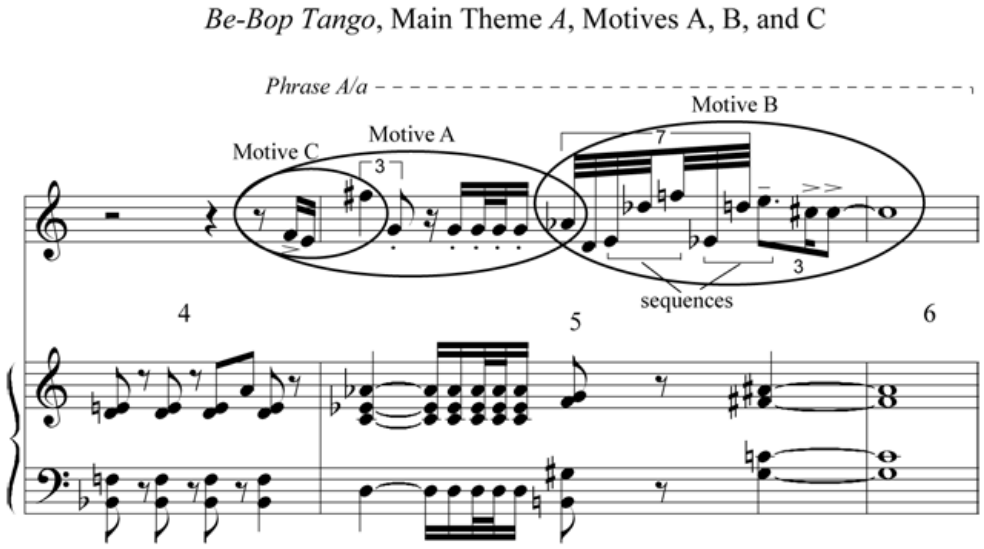
In (ex. 1.15) we can see the typical traits inherent in Zappa's compositional technique. Prolongation of motive A from the primary motive theme group is evident in bars 12-14. Developmental pitch procedure is apparent on the first beat of b. 14 where the phrase is subject to permutation of motive B pitch content. And on the second beat of b. 14 Morris-Price has clearly marked instances of interrupted prolongation and pitch rotation; looking at the 4th note onwards of the septuplet in b. 5 (ex. 1.16), (Db), (F), (Eb) and (D) appear to have been

[51] Morris-Price 2004, p. 149.

interrupted in b. 14 (ex. 1.15) by notes (E) and (F), and in the same bar, rotation has occurred with the (F) and (Db) notes.



EXAMPLE 1.15. Morris-Price 2004, ex. 3.25a, p. 152.



EXAMPLE 1.16. Morris-Price 2004, ex. 3.14, p. 137.

In "Little Dots: A Study of the Melodies of the Guitarist/Composer Frank Zappa", (2004) Clement illustrates a motivic development procedure too, describing the first melodic statement

of "Be-Bop Tango" as the main theme which acts as a 'melodic model' for the entire piece.[52] Both Morris-Price and Clement have approached the overall melodic structure as motives that become subsequent permutations, but where they differ is in the method of identifying these motives. Morris-Price, in his melodic analysis labels motives A, B, C, and D, while Clement reduces each melodic statement to a prime form and demonstrates the exploitation of a larger set (the main theme) into subsets. Clement consolidates his approach of motivic development and variation with the idea of a mosaic; conceptualising the superimposition of irregular rhythms over a *factory cycle*.[53] The *factory cycle* is essentially the main pulse of a given piece of music where irregular types of rhythm can occur, for example a crotchet pulse is a *factory cycle* which can have a quintuplet or septuplet superimposed to cause a type of rhythmic friction. "If a factory cycle is viewed as a mosaic, each factory cycle beat [quarter note] serves as a tile in the mosaic where a motive can be placed".[54] Therefore, in this conceptualisation, a tile within the mosaic can represent a motive, and each tile can be:

> 1. Reused in their entirety but metrically displaced to a different beat.
> 2. Transformed by rhythm and/or pitch.
> 3. Transformed by rhythm and/or pitch and metrically displaced.
> 4. Abandoned entirely. The new cycle may also create a new motive, which will be treated in the same manner.[55]

This process is also elucidated by Morris-Price in much the same way and alludes to the economy of means Zappa referred to in Stravinsky; the way small groups of notes are shuffled round throughout a composition.[56]

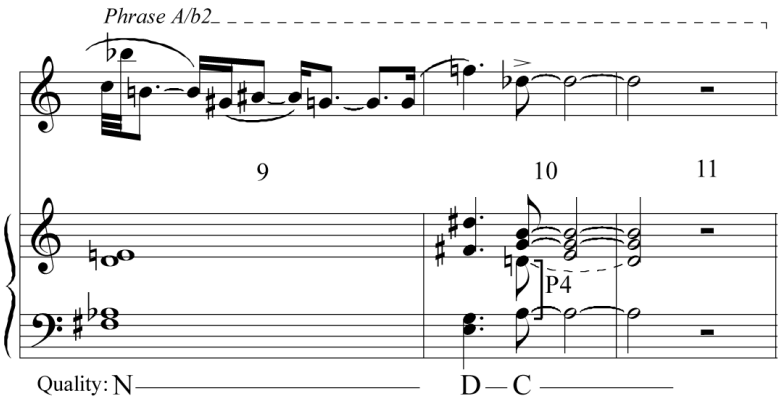
In the chordal analysis, Morris-Price presents us with the most common sequence of chords that support each melodic statement wherein the motives are played against. The

[52] Clement, B. 2004. 'Little Dots: A Study of the melodies of the Guitarist/Composer Frank Zappa'. M Phil thesis. Florida State University.
[53] Zappa uses the term "Factory Cycle" to express a regular metric pulse on top of which rhythmic dissonance can be played out (see Marshall 1988).

[54] Clement 2004.
[55] Ibid, p.61.
[56] *Peefeeyatko*, 1991. Directed by Henning Lohner [TV Documentary] Germany: WDR3.

sequence is predominantly, neutral, dissonant and consonant, with some chords interacting with notes of the melody. In this instance, Morris-Price has "explored intervallic relationships rather than traditional bass line and voice-leading procedures".[57] Although I mentioned earlier that this would have been more of a convincing analysis of the harmony as opposed to the functional approach, there is still an aroma of functionality about it with the N-D-C (Neutral-Dissonant-Consonant) chords almost inferring a II-V-I type of convention.

Be-Bop Tango, Phrase *A/b'*, Harmonic Progression



EXAMPLE 1.17. Morris-Price 2004, ex. 3.6, p. 128.

An alternative approach by Clement reduces the chords to prime forms which yield sets [0,2,3,6] and [0,1,3,7] as the most prevalent in "Be-Bop Tango". The [0,1,3,7] chord tends to support each occurrence of the main theme and is considered to be more 'stable' whereas the [0,2,3,6] evolves throughout the piece. If any consonant and dissonant chord relationship can be found within this context it is in the observation that Clement has made pertaining to the introduction.

> [T]he two chords seem to have a dissonance/consonance relationship; that is, the [0236] resolves, by semitone movement in each voice (SATB), to the more consonant [0137]. In fact, the [0137] might be better designated as an augmented eleventh chord, minus the seventh. As may be remembered from Zappa's categorizations of "harmonic aromas", the augmented eleventh chord was classified as the chord of be-bop that would be recognized "consciously or not" by the listener. Therefore, in the atonal context of "Be-Bop Tango", the [0137] serves as the "consonant" chord.[58]

[57] Morris-Price 2004, p. 130.
[58] Clement 2004, p. 55.

Although both approaches are similar in terms of consonant and dissonant relationships, the emphasis with Clement is less on cadential completion.

De-Codification of Cultural Symbols

While the aforementioned analysts are primarily concerned with musical structure, others gravitate toward musical meaning and the interpretive reading. This can be a fruitful endeavour so long as the accompanying music analysis holds a degree of consistency. In "Musical Meaning in Frank Zappa's The Blue Light And Galoot Update" (2007), Ben Singleton adopts Tagg's semiotics, with an emphasis on the de-codification of cultural symbols pertinent to "The Blue Light", a piece saturated with extra-musical meaning. The author discusses "The Blue Light" from the album *Tinsel Town Rebellion* (1981) and "Galoot Update" from *Thing Fish* (1984), the latter piece retaining the musical structure of "TBL" but with altered lyrics.

In *Introductory Notes to the Semiotics of Music* (1999) Tagg expounds the "Interobjectivity" concept and the dual purpose of correlation between musical pieces. In the first instance, it is suggested that, "relating the structures of one musical work to those of others…allows for consistency of structural recurrence to be established". In the second, "the establishment of structural recurrence can lead to the collection of a body of structurally similar musical works, some of which share common traits other than structural similarity".[59] The "Interobjectivity" model is employed by Singleton, where musical elements of "TBL" are aligned with other pieces of music that do not necessarily share the same structure. For example, the sea shanty song "What shall we do with a Drunken Sailor?" is supposed to share similar characteristics with the introduction of "TBL" where the rhythm guitar motions up and then in a rapid downward succession. The connoted significance of the introduction to "TBL"

[59] Tagg, P. 1999. *Introductory notes to the Semiotics of Music*. Available at: www.tagg.org/html/semiotug.html (Accessed: 8 December 2013).

is that of the sea, and the sea shanty as conceptually associative as well as, according to Singleton, musically. An association of the introductory keyboard melody is the *Star Trek* theme, and although as the author points out there are salient differences melodically, it serves a similar purpose, a portrayal of vastness, "the grandness of images with the shimmering background music and dramatic horn melody all emphasise the location of the film. This coincides with the scene set by the waves that open *The Blue Light*".[60]

The oceanic idea is developed from an interview Zappa gave to Relix magazine in 1979, in particular, the reference made to swimming in pools of "metaphors and cosmic debris". After being asked a question pertaining to Paul Kantner (Jefferson Airplane co-founder/guitarist) who had opined that the need is not as important as the search for fulfilment, Zappa responded by stating that he did not consider himself to be that much of a metaphysical kind of person, and that he had very little interest in searching and fulfilment.

> That's for people from San Francisco. That's all they care about up there. They have so much brain damage from all the LSD tests the government did on them that they can't even talk English anymore. They're swimming around in pools of metaphors and cosmic debris.[61]

Although Singleton has adequately identified elements of continuity between the quotation and some of the lyrical content in "TBL", is this enough of a connection to propose that "TBL" was actually conceived from this interview? Zappa has often expressed a general dislike for cultural conformity within other contexts and there seems to be insufficient evidence to suggest that in this case the composer is specifically deriving inspiration from the hippies of San Francisco.

In terms of encoded cultural symbols our attention is drawn to an example of which Singleton coins the "Dread Structure".[62] This is where multi layered dissonant vocal harmonies interject, such as in "your Brut Cologne, you're writing home" ("TBL" Zappa 1981, 00:37-00:41). According to the author, the inter-objective connection is the musical depiction of

[60] Singleton, B. 2007. 'Musical meaning in Frank Zappa's The Blue Light and Galoot Update', MPhil thesis, Open University.
[61] Peterson, C. 1979. 'Frank Zappa: He's only 38 and he knows how to nasty', *Relix*, 6(5), pp. 20-22, 27-28, 44.
[62] Singleton 2007, p. 18.

danger in horror films where the intention is to supplement the visual by arousing fear. In the manipulation of this cultural symbol, Zappa is expressing fear in the assumed protagonist/s by adopting a reminiscent musical texture that the audience are likely to understand as connotatively fearsome. Singleton then asks the question, how does fear connect with Brut Cologne? The answer lies in what Zappa terms "institutionalised fear", the corporate necessity "to induce people to buy things they don't need for reasons which are not there".[63]

> [P]art of what's involved in the data that they are tricking you into consuming is this built-in dread factor: "You can fail. Someone will laugh at you. You are impotent. You will be poor. You will die!" …after they've shown you the dread, they show you the light at the end of the tunnel: [the] product.[64]

Aside from consumer anxiety and fear, the Cologne concept is developed further where it now becomes an application for covering up unpleasant odours. Singleton is apt to extend this idea to "Galoot Update", where *Galoot cologne* is used to mitigate the olfaction of chemicals that change San Quentin prisoners into *Mammy Nuns* (Thing Fish 1984). This is one of Singleton's better moments.

Singleton discusses the keyboard ostinato accompanying "you are hopeless, your hopelessness is rising around you" ("TBL" Zappa 1981, 00:42-00:51), wherein he states that there is a certain limited musical value to it. The ostinato is supposed to be representative of hopelessness and to have some notional correspondence with the concept of anthropomorphism in musical structures.[65] Singleton explains that a "semiotic concept called actoriality [a term coined by Eero Tarasti] operates within music…that represent[s] situations involving either events or characters through musical themes or other musical devices".[66] Because Tarasti's concept of semiotics is multifariously derived, Singleton's induction of the word "actoriality" appears overtly reduced in content solely to fulfil an element of the argument. The word "actoriality" should at the very least reveal a clear indication of its purpose. As it does not, the

[63] Marshall 1988.
[64] Ibid.
[65] Tarasti, E. 1994. *A Theory of Musical Semiotics*. Indiana University Press.
[66] Singleton 2007, p. 24.

manner in which his idea has been presented makes it difficult for the reader to distinguish the difference between "actoriality" and "leitmotif" which at this juncture appears to share the same characteristics.

Singleton's narration stimulates correlation between "TBL" and the listeners' potential to infer the inherent intertextual subtleties. At times the discourse is perceptive with some entertaining interpretations, for instance the *Jaws* movie theme is approximated in the electric bass while supporting Zappa's Sprechstimme technique "it smells like the ocean" ("TBL" Zappa 1981, 02:52). Zappa then introduces us to Atlantis via Donovan's song of the same title, reminding us of the pop singer's brocade attire whereupon we enter the underwater world. Singleton reads into the Atlantis theme and the supposed loss of a sophisticated culture with all its Antediluvian implications willingly adopted among other occultisms as a theme to legitimise Nazi ideologies. As Singleton points out, "We can see that dealing in such fantasies is to flirt with dangerous right-wing ideology…It is this flippant use of myth and metaphor that Zappa is attacking, the potential for people to succumb to hidden motives and conspiracies".[67]

The author has forged lyric and music to expose not only surface details but to go beyond and reveal the elusive characteristics that hover in the background. The semiotic approach affords greater articulation of this inherent hierarchical tendency that is not necessarily exclusive to social or political history but considers psychological factors too. Zappa's own comments on the matter further support this position where he states that his music "contains codified information not only about the American way of life but it contains codified information about psychological processes".[68]

Although Singleton has probably used the most effective form of analysis for a piece like "TBL" there are however, questionable musical references. Singleton purports that the

[67] Singleton 2007, p. 33.
[68] Dallas, K. 1978. 'Carry on Composing', *Melody Maker*, pp. 8-9.

trumpet (not ‘mute trumpet’ as the author writes) at (04:40) is derived from Stravinsky’s “The Procession of the Sage” of *The Rite of Spring* (1913). This is hardly detectable and if a comparison had to be made it would be more residual of the introductory melody to “Spanish Key” by Miles Davis from the album *Bitches Brew* (1970) both “TBL” and “Spanish Key” melodies in fact sharing almost the same notes in the same key. The tremolos in the guitar beginning at (04:38) are vaguely similar to the opening bars of Stravinsky’s *Petrushka* (1911) but because of the opposing harmonic framework rendered too nebulous to account for a substantial claim of likeness. As mentioned, Singleton exhibits perceptive and entertaining interpretative readings of “TBL”. The author concedes that his interpretation provides one of many possible outcomes. Nevertheless, the direction taken in order to reveal encoded symbols in “TBL” is certainly positive and coincides with the thought process Zappa is clearly undertaking in order to convey the message.

Are Scores Important for Musical Analysis?

In “Frank Zappa’s Orchestral Works: Art Music or “Bogus Pomp”?” (2007) Allan Wright explores the extent of Varèsian compositional techniques employed in Zappa’s music. The initial vehicle for this exploration is “Bogus Pomp” (BP), which is used to define the applicative degree of the techniques. Varèsian sonorities and textures are identified throughout with reference to *Ionisations, Intégrales, Hyperprism* and *Ameriques*. The analytic approach documents in tabular form the musical events that occur throughout the piece. A table with ‘*x*’ and ‘*y*’ axes is used, where axis “*x*” represents time in minutes and seconds of each section and axis ‘*y*’ the instruments used. Each section is labelled from A-Q, equal to the subdivisions of the entire piece, the letter names are then used as reference for discussion of the respective musical events.

"BP" is essentially episodic, meaning that there is little in the way of ongoing structural unification which might permit a more formalistic analysis. It is filmic in continuity, following a musical course indicative of scene sequences where each one could denote an event or character. In the LSO programme notes, Zappa is explicit about his intention, "the title Bogus Pomp is a reference to the style in which most "movie music" is written and performed, and …contains parodies of the more offensive types of orchestrational abuses perpetrated by practitioners in that medium".[69] We might add that those musical parodies are also representative of specific events and characters from the movie "200 Motels" (1971). In a sense, Wright's approach is plausible enough, however "BP" is also self-referential and by embracing a larger network of Zappa's music it would be possible to cross reference musical structures. Questions could be asked as to how the structures are similar? Is the instrumentation the same? Has the structure been developed from an earlier incarnation? This is an appropriate and pertinent discussion to engage in because "BP" like many other Zappa pieces, evolved over time. Nevertheless, Wright's intention here is to discover how much the Varèsian influence can be measured and this is the objective the author attempts to fulfil.

As mentioned, the analysis is adequate but the justification for it is problematic because Wright has misjudged the way Zappa developed his compositional skills. The author has not used scores for his analysis preferring to apply his own method of understanding, claiming that, "examining the music in this way conforms to Zappa's own learning experience of 20th century compositions". Wright continues by stating, "[Zappa] did not analyse scores, he constructed a mental impression of the sound-world of the music that he heard".[70] Herraiz (2010) has acknowledged this by claiming it as an erroneous assumption, and cites Zappa wherein his comments contradict Wright's supposition.[71]

[69] LSO Programme- notes 1983, p. 15.
[70] Wright, A. 2007. 'Frank Zappa's Orchestral Works: Art Music or 'bogus pomp'?", Masters, University of Glasgow.
[71] Herraiz 2010, p. 42.

> I bought my first Boulez album when I was in the twelfth grade: a Columbia recording of "Le Marteau Sans Maître"…Within a year or so of that, I managed to get hold of a score. I listened to the record while following the score, and I noticed that the performance was not very accurate. I later acquired a recording of "Le Marteau" on the Turnabout label, with Boulez conducting, and was surprised to find that he took the first movement much more slowly than the tempo marked in the score.[72]

Besides this error of judgement, it is fanciful to assume that any subjective form of analysis is fair game in understanding Zappa's music. It implies that a subjective undertaking of analysis or "appreciation" should suffice as long as it correlates with the same method of appreciation the composer had on his way to developing his own style of writing. The inference is that one is justified in an analysis by interpreting the interpretation of the interpreted which in this specific context is far too vague to withstand rigorous examination.

The analysis and discussion of "The Girl in the Magnesium Dress" (1983) is highly flawed. The transcribed notes do not correspond with the recording, and the following prerequisite statement to the analysis does not substantiate the process undertaken, Wright claims that, "[t]here may be some inconsistencies with other listeners here, as the perception of one person's ear will differ slightly from another, but the notional pitch language can still be observed nevertheless".[73] Are we to deduce that the "notional pitch language" represents notes somewhere in the vicinity of the actual notes? If so this does not strike me as scholastic work. This is a salient example of the kind of discrepancies and inconsistencies that can prevail when one assumes that the best way to analyse Zappa's music is without any reference to scores. The piano part for "TGITMD" was first made available in a 1992 edition of Guitar Player magazine called "Zappa!" and is easily accessible online, one wonders why this was not consulted.[74] The problem with the analysis does not end there as Wright perceives the piece to have been written with a conventional approach to musical form. Reference is made to contrapuntal activity, pitch stasis, rhythmic and pitch convergence, preference for specific

[72] Zappa, F., and Occhiogrosso, P. 1989, p. 195.
[73] Wright 2007, p. 46.
[74] Menn, D. 1992. 'Zappa!' *Guitar Player*.

intervals, development of previous musical gestures, pitch orientated recapitulation, tension building motives as if these musical devices had been the underlying conceptualisation of the piece. Zappa had explained the evolution of "TGITMD" in an interview from 1992:

> The piece was made from Synclavier digital dust…They have this guitar unit that you can plug in, and besides recording the note that you play, it records a bunch of data in the form of G numbers…they're not exactly notes…they indicate that something happened on the guitar string at a certain point in time…that says what your finger did besides just playing the notes. So we converted this dust into something that I could then edit for pitch and the dust indicated a rhythm. That's how "Magnesium Dress" was built.[75]

Wright has proposed an interesting question in relation to the stylistic similarities of 20th century composers and Zappa. The author acknowledges Stravinsky, Ives and Cage, but his main focus is in on Varèse and because of this, the connection becomes laboured with correlations increasingly unsubstantiated. Although there are Varèsian components at work in "BP", they do in fact appear in other orchestral works, and so ultimately, what might have been illuminating is rendered descriptive.

Some of the existing music analytical work on Zappa yields little more than tentative descriptions, while other analyses illustrate significant discoveries and set the precedent for further investigative work. Clement has offered the most detailed analysis of the composer's music to date and his dissertation provides an excellent platform from which to extend the application of musical analysis. Nguyen incorporates Clement's discovery of the *Chord Bible* in his analysis of "Sad Jane" which clearly aids in a better reading of chordal construction in Zappa's orchestral music. Morris-Price offers a thorough analysis of "Be-Bop Tango" and besides his persistence for a harmonically functional interpretation discovers interesting motivic activity as being a plausible approach for that piece. Singleton shows potential in the semiotic approach, and his analysis of "The Blue Light" is at times absorbing and entertaining and indicates a practical approach to discovering connotative significance and unity in pieces

[75] Ibid.

that cannot be so readily analysed structurally. And finally, although unfulfilled, Wright poses a pertinent question by stating to what extent is Zappa influenced by 20th century composers?

To conclude this overview, we should consider the short but succinct article, "Listening to Zappa" (2000) by Jonathan Bernard. The article informs the reader of possible strategies for listening to Zappa's music and describes the structure of the composer's ACE (Acoustic Concert Ensemble)[76] and ECE (Electric Concert Ensemble)[77] pieces and how they can be seen as interrelated. The structures are divided into two categories:

> (1) forms relying upon repetition of some kind; as opposed to (2) episodic forms, consisting of series of motivic, thematic, and/or other elements that are essentially non-repeating. The first category can be further subdivided into (a) recurrent-theme structures and (b) ostinato-based or static structures.[78]

Bernard identifies something of interest in the recurrent theme category with "Dupree's Paradise" (ACE), a piece where chromatic musical events are interpolated between the diatonic elements that begin and end the piece. In this case, chromaticism is deemed to be "a kind of temporally expanded form of the "fills" one finds in many of Zappa's songs, between vocal phrases for example".[79] Songs exemplary of this design are "Fembot in a Wet T-Shirt" or "Jumbo Go Away" which share a similar form albeit on a comparatively micro scale.

ACE pieces from the episodic category are considered to present more of a challenge for the listener. Bernard perceives the problems to be in the structure of certain pieces; the episodic events considered not dissimilar to each other, homogenous textures with little repose, and free succession of unrelated themes. Bernard suggests that there are pieces which require a narrative in order for the listener to have a bearing on the auditory experience, of which he further reiterates the view in relation to "Mo 'n Herb's Vacation" by stating that "the absence of any clues as to how to organize the listening experience is quite bewildering".[80]

[76] Bernard 2000, p. 63.
[77] Clement 2009, p. 3.
[78] Bernard 2000.
[79] Ibid., p. 88.
[80] Ibid., p. 91.

Bernard makes the distinction between Zappa's ACE and ECE pieces maintaining that the two are not mutually exclusive since many of the pieces crossover into both areas. But it is this intersection that brings about problems for Bernard who seems unconvinced that the ACE and ECE recordings demonstrate the same level of inspiration. The criticism of the ACE pieces, seems to be levelled at the lack of parody, political and social satire, scatology and improvisation.

> For if it is true that, to the extent that the ACE pieces come across to the listener it is because they can be heard through the models of Zappa's other music, to the extent that they do not come across it is because Zappa in writing for ACEs has, voluntarily or not, done without so many of the elements that make his other music vibrant and distinctive.[81]

Although Bernard has observed interesting factors in the ACE pieces, I still think it is possible to conceive some of them as separate entities without such a uniform associative method of listening. Of course ECE pieces that have made the transition to ACE works will inevitably be associated by the listener. But there exists a number of Zappa's ACE works which have the potential to stand alone as important landmarks in Zappa's orchestral oeuvre, some that come to mind are "Pedro's Dowry" (*Orchestral Favorites* version), "Bogus Pomp" (*OF* version), "None of the Above", "Naval Aviation in Art", "The Perfect Stranger", and "Outrage at Valdez". The aforementioned works are not necessarily partial to Zappa the social commentator, the satirist or whatever, but I am not sure whether they are more challenging to listen to because of it. However, Bernard has clearly indicated that some problems do exist and to an extent they are pre-emptive to considerations one has to make in addressing the method for analysis of Zappa's music.

[81] Ibid., p. 93.

CHAPTER 2

Structure, Concepts and the Analytical Approach

The analyses herein of the musical materials and means of implementation reveal practices that can be traced across the selected compositions. Focus is on the structure and the materials used in order to understand how the compositions work. As a result of this, there is less analytical emphasis on any given piece of music as a whole, rather the inner workings of a piece are analysed. The structure refers to Zappa's architectonic principles, essentially a repertoire of self-devised compositional techniques, exemplified by *Chord Bible* harmony and *isomelism.* These techniques form the basis of the structure and it is the method by which this structure is decorated that infers a design. In other words, it is the manner in which the techniques are manipulated; the orchestration considerations, dynamics, repetition and variation that is illustrative of a design. Therefore the design of which I investigate should not be confused with the "end product" (the design of the piece as a whole), but instead the creative manipulation and development of the anatomical constructs.

Zappa was arguably one of the most important composers of the late 20th century. He encompassed all the characteristics of a maverick; a composer pushing the boundaries of what could be achieved in musicianship and composition. An unflinching figure who consistently challenged and deconstructed forms of convention in music. Highly creative and prolific, his music comprises unique combinations from a multitude of styles forming a substantial body of work produced in a relatively short period of time. Zappa was consumed with the regenerative process of composition and finding new and inventive ways of combining a wide variety of sounds, timbres and textures. Unconcerned as to whether his music met the expectations of his

listeners, his main interest was to continuously develop and refine his skills as a composer.[1] However, this perpetual quest for experimentation could at times render his music disjunctive. Zappa percussionist (1977-88) Ed Mann explained that;

> Frank could tolerate no comfort zones, even if your comfort zone was that you loved his music. He had heard from the very beginning how much people loved his music, and so I am certain that he very early on began to insert elements which would upset that love. It was in part his overriding decision to not have friends, and it was in part as a test to his ensemble members to see if they would still love him and his music regardless of the passages which were clearly unfriendly, and sometimes ugly.[2]

George Duke (Zappa keyboardist 1970-75) also expressed a similar view pertaining to this apparent musical disjuncture and how working with Zappa could sometimes be frustrating;

> [Zappa] loved music that didn't quite go together, he would force it to go together, I mean he would take the most beautiful melody, you know, with an orchestra or something, and just throw… [hits piano with elbow creating discordant sound]… a wrench at it, you know, that was who Frank was, and sometimes it used to drive me crazy, I'd say Frank, this is too beautiful, you can't mess it up, nahhh, [imitation of Zappa disagreeing]… it needs to be messed up.[3]

'Throwing a wrench at it' is an operative term to use in describing Zappa's music as he seemed to revel in the impending destruction of anything that could be perceived as 'beautiful' and often usurped sections by seemingly abrupt transitions.[4] Zappa's keyboardist Tommy Mars (1977-82) stated that, "Frank had the most interesting way of taking a tune, and when you least expected it, turning, making a 180 degree turn…and then all of a sudden you're in the other direction."[5] However irreconcilable transitions may seem, they are ultimately integral parts of

[1] Zappa expressed that he composed music irrespective of intentionally fulfilling his listeners' expectations. The premise was that the composer had to like what he wrote first, and thereafter, if it was liked by someone else, this resultant symbiosis would be favourable. The most important aspect for Zappa was an unrestricted form of expression through music, untainted by the mechanisms of the industry which dictated that music should sound a certain way to appease its audience. For Zappa, "the musical message is a philosophical message and it's very simple, you're never going to please anybody else, so you might as well please yourself." *Eat that Question: Frank Zappa in his own words* 2016 Directed by Thorsten Shütte [Film]. United States: Sony Pictures Classics.
[2] Ed Mann, email message to author, March 4th 2015.
[3] *A Pioneer of Future Music*, 2007. Directed by Frank Scheffer. [TV Documentary] Nederland 2.
[4] Although the term "beautiful" is a subjective interpretation, it seems appropriate in this context. Zappa often used adjectives to represent certain attributes of music, "mean" and "ugly" for example, (see Zappa discussing Edgard Varèse on *The Late Show* 1993 BBC2 Television 23 July). The use of the adjective 'beautiful' should not be confused with the idea that music is expressing these qualities per se, it is merely based on how it is perceived. Whether music could express feelings or not was extensively explored by Hanslick in the 19th century who explicated that, "music… has no aim (object) and the mere fact that this particular art is so closely bound up with our feelings, by no means justifies the assumption that its aesthetic principles depend on this union". Hanslick, E. 1883. *The Beautiful in Music.* 7th ed. London: Novello and Company Limited.
[5] Radcliffe, M. 1994 [Radio]. *Air Sculpture*. BBC Radio 1.

the compositional process and are what characterise many of the composer's pieces. But while musical incongruity is rampant it can also be deceptive.

Zappa's orchestral compositions consist of dense chordal structures, tonal ambiguity, dissonance, complex rhythms, and abrupt harmonic or textural changes, combined with parodic simulations of popular culture and conventional orchestral norms. One might assume that the end result would appear to be discontinuous, however the approach to composition is deliberate and orderly. Continuity is marked by interdependence between micro and macro structures which are stratified across the composer's music. In fact, it is not restricted to the music, if one were to consider those structures existing beyond the music itself, we would arrive at a point where Zappa's conceptual framework is revealed in its entirety. This would show a common approach to everything within Zappa's creative world, which is ultimately the purpose of *conceptual continuity*.[6] Existing as it does, *conceptual continuity* is a term used to describe the entire work, including the music, album covers, interviews and other associations that are part of this vast network. It is crucial that the orchestral pieces are seen to be part of this conceptual framework as sole reliance on music analytical techniques will most certainly hinder a deeper conceptual understanding. This may dissatisfy both the analyst and reader hoping to find a compositional strategy that can be reduced to a single analytical scheme. The entirety of his work and philosophy has to be acknowledged in order to gain an appreciation for why the music sounds the way it does. Of course one must articulate the statistical information by engaging with appropriate use of analytical techniques, but this will not provide a comprehensive answer to the problem of consolidating a compositional style solely within the limited parameters of music analysis. Granted, I shall endeavour to explore the theoretical constructs within the music by using the most useful analytical tools at my disposal in the hope

[6] One could argue whether an 'interview' is a creative work or not, nevertheless, Zappa included the interview as part of the overall concept of his work, see Marshall (1988).

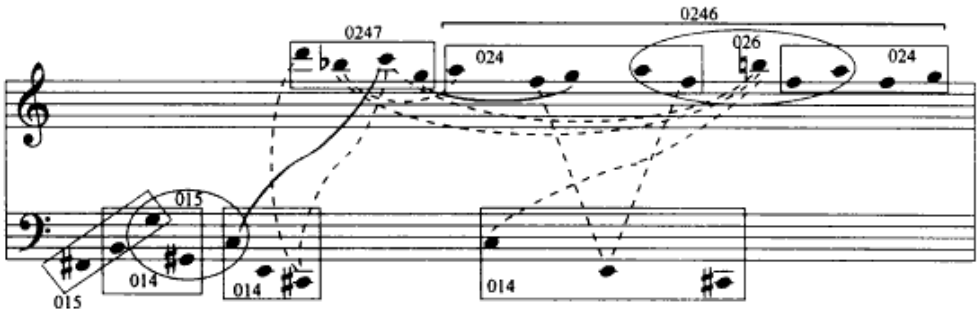
that the analyses will reveal important theoretical continuity in the selected pieces. However, the final chapter is a companion of equal importance to the analyses as it elucidates Zappa's conceptual approach and may enable the reader to confront the music with a more informed understanding.

Analytical Preparation

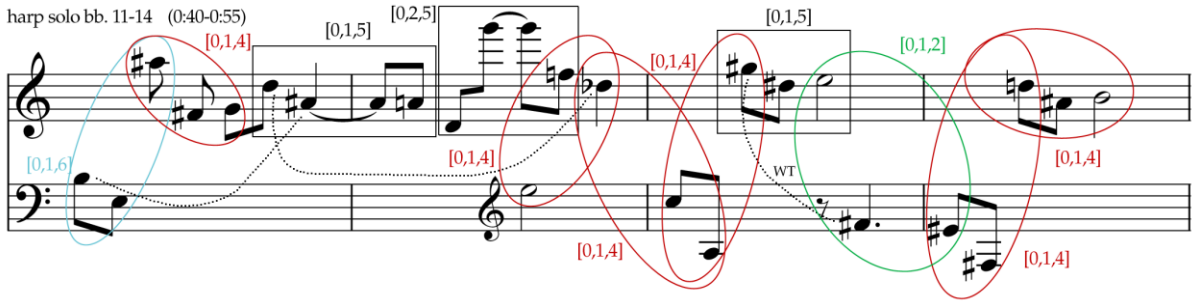
Before committing to a process of analysis, I had tried several techniques to see if any would reveal a consistent compositional method. I attempted to use motivic analysis in some of the pieces, but soon realised that because of the nature in which Zappa developed musical ideas, the technique seemed ill fitted. For example, a potential motive may develop and vary in subsequent bars and show motivic attributes, but then may be completely abandoned for some other new form with no recourse to the 'potential motive'. Furthermore, this process of abandonment is concurrent with several other motives beginning and developing independently, which further complicates matters in terms of motivic analysis. Using this technique also raised problematic questions: if motive (a') is a variant of motive (a), how much would a later incarnation of motive (a) have to differ before it is no longer deemed a variant? And if motive (b) is defined as a new motive what is the justification for it to be new as opposed to a variant of motive (a)?

Adopting pitch class set theory had also been contentious. Realising that it was difficult to establish continuity with this approach alone, I subsequently tried to incorporate Roig-Francolí's Pitch-Class-Set Extensions (2001). Roig-Francolí illustrates how pitch class sets can be modified by serial operations yet still be interconnected by means of contraction or expansion. The purpose of which is to gain more mileage in the analysis by revealing in a pitch set as many possible related outcomes. The idea is to go beyond merely finding individual sets but to increase the utility of them by observing immediate correlations. An example of this

procedure, (see ex. 2.1) shows correlations outlined by Roig-Francolí in his analysis of Webern's *Five Movements for String Quartet, op.5, no.5* (1909). We can see how the sets overlap and extend the concept of pitch set continuity, the last note of the first [0,1,5] is pivotal to another [0,1,5], while embedded between the two is a [0,1,4] set. The example also illustrates what Roig-Francolí describes as sets connected by common tone (CT) represented by solid slurs and chromatic tone (CHR) by dotted slurs.



EXAMPLE 2.1. Roig-Francolí. 2001. p. 68, ex. 3c.



EXAMPLE 2.2. Pitch Class Set Extensions used in "Pedro's Dowry" (LSO).

While in some cases the technique showed connectivity, it also became more abstract and less representative of the things I wanted to show in Zappa. This is by no means an indication of redundancy in Roig-Francolí's technique, on the contrary, in some cases it is a very useful device; it just did not seem to work for Zappa's orchestral music. Although pitch class set theory does not offer a panacea either, it tended to be more useful, but only to an extent, because the full integration of the twelve tone system was not part of Zappa's compositional process.

Instead, the composer was content to adopt elements of the technique with less restrictions, an approach that is illustrated in "Mo 'n Herb's Vacation" (see chapter 6, "Development and Variation of Pitch Classes [0,1,3,4] and [0,1,4,5]"). Essentially pitch class set theory is useful for illustrating recurring note groups that tend to permeate several pieces, and for providing the nomenclature for labelling those groups.

I had also considered adapting Schenkerian analysis. Intrigued by its graphic elegance, I had attempted to use Schenkerian analytical graphs for some of Zappa's pieces. I had no expectations that the *ursatz* would have any significance in the chromatic pieces, since the reduction of the fundamental structure is reserved for tonal music. However, drawn to the aesthetic of Schenkerian analysis, I wondered whether a reinterpretation of its design and nomenclature could represent the structure of the musical materials used within Zappa's orchestral pieces. I studied the concept proposed by Salzer (1952/62) and how post tonal music could be analysed using tonal music methodology, but the idea that dissonant harmony was merely a form of embellishment did not take into consideration that perhaps the dissonance was the underlying structure. This is a fundamental principle in Zappa's music as his compositions are built on dissonant structures. In his article "Dissonant Prolongation: Theoretical and Compositional Precedents", Morgan (1976) suggested ways to expand the Schenkerian analysis model into the realms of non-functional music where "dissonant tonics" might replace the underlying major/minor triadic prolongations. Morgan proposed that dissonant prolongations evolved from the tonal system and became more extensive in compositions at the end of the 19th century. As these prolongations became an integral part of compositions, Morgan viewed them as representative of a tonic or "dissonant tonics". However the concept of aligning dissonant music to a "tonic collection" still assumes the restrictions inherent in Schenkerian analysis. It became increasingly obvious that I would have to find some other less reductive way to show a compositional strategic continuum in the orchestral pieces.

I have therefore opted to illustrate compositional consistencies with no definitive analytical solution in mind, but to simply show recurring musical events. By placing these events side by side, it is possible to see the fragmented way Zappa diffused musical material in order to lend coherence to highly complicated and dissonant music. I do not claim a definitive analytical system for Zappa's music, rather a way of illuminating, often difficult to identify, characteristics that can be measured against each other to reveal a compositional habit or tendency. However, to represent these findings, I shall rely on *isomelism*, *CB* harmony and set theory for ease of categorisation. In addition, to compartmentalise forms of repetition and variation, I have introduced the umbrella terms *fragmental* and *sectional* repetitions.

Fragmental and Sectional Repetitions

The appearance of various incarnations of musical fragments and sections across Zappa's music is widespread. Some of these can be subject to thematic repetition or contextual transformation. For example, "Blessed Relief" from the album *The Grand Wazoo* (1972) is introduced by a Bb Lydian arpeggiation in the acoustic guitar which later reappears in "The Adventures of Greggery Peccary" from the album *Studio Tan* (1978) but therein performed on piano. In "Blessed Relief" the fragment is introduced and played against a slow tempo jazz inflected triple time groove which is light and ambient. In "The Adventures of Greggery Peccary" the Bb Lydian arpeggiation now briefly intersects *The Philostopher Speaks* section at (16:26) supporting Zappa's frantic narration. This would represent a fragmental repetition but also a contextual transformation. Essentially, the same fragment is musically enacted in a completely different context. The reuse of a *section* represents a more substantial repetition, as in "Pound for a Brown" where the middle section is repeated in its entirety in "What's the

Name of your Group?" from *200 Motels* (1971).[7] The section in its original incarnation appears on the *Uncle Meat* album (1969), performed by sped up reed instruments, however in "What's the Name of your Group?", it is performed at a much slower pace with lyrics added to the melody sung by a soprano. Recurrent fragments and sections can exist as disseminations across different pieces of music but they can also occur within the confinements of single pieces. "Pedro's Dowry", "The Perfect Stranger" and "Mo 'n Herb's Vacation" each have a high concentration of fragmental and sectional repetitions. Ultimately these fragments and sections form interrelated and interdependent micro and macro structures across the pieces and within. This also exemplifies the continuity of contextually transformed recurring structures which is a significant part of variation and repetition in the selected orchestral pieces. To illustrate the aforementioned structural interdependence, in the analyses *fragmental repetitions* and *sectional repetitions* denote either small or large repetitions. *Fragmental* is where a short phrase or melodic line is repeated and differs to *sectional* which tends to be repetition of a larger phrase or section. These are nothing more than simple forms of categorisation which act as umbrella terms for the incubation of recurring techniques across the selected works. Essentially, it allows for the collective identification of repetition, variation and development.

Overview of Compositional Techniques.

In *A Study of the Instrumental Music of Frank Zappa*, Clement points out that "Zappa's chromatic works do not exhibit a tightly-organized pitch system... compositional techniques found therein often resist theoretical formalization".[8] However, although Zappa's chromatic works "resist theoretical formalization", there are, as Clement has also noted "several

[7] The "Pound for a Brown" section in "What's the name of your Group?" did not appear in the *200 Motels* original motion picture or sound recording. However it was released as a b-side limited edition 7" single in 2015. Frank Zappa. 2015. *Overture From Frank Zappa's "200 Motels"* [7" Vinyl]. California: Barking Pumpkin Records.
[8] Clement, p. 179, 2009.

compositional tendencies that manifest themselves across many of [his] titles". One of the most significant and ubiquitous techniques is *isomelism*. This is where a melodic line is repeated yet on repetition is subject to rhythmic variation. The repetitions also take into account transposition, orchestration and homorhythmic harmonisations, so although it is a relatively simple procedure, there are no limitations to the way those repetitions can be embellished. *Isomelism* can occur locally or over a long range within a given piece of music, and depending on the manner in which the technique is employed, render it easy or difficult to decipher. Local use means the technique is confined to within a few bars and long range is a re-instantiation that is repeated many bars later. *Isomelism* reveals both "maximalist tendencies" and resourcefulness simultaneously.[9] The technique can be subject to a highly involved passage of music with complex rhythms and pitch saturation, demonstrating the maximalist tendency, yet maintain the same pitch resource from a previous incarnation of the passage, exhibiting resourcefulness.

Isomelism and other forms of repetition are pervasive elements in establishing continuity. The repetitions facilitate a maximisation of any given resource where the composer can recycle previously stated material in a creative manner. This type of dissemination of musical material allows for greater freedom in composition. Repetition in the orchestral pieces studied are idiosyncratic, and generally do not adhere to any established musical forms. Zappa was never keen on the musical forms of the Classical period; he abhorred the diatonic cadential processes. And even in the Second Viennese School with the twelve tone technique, although Zappa enjoyed the music of Webern, he felt that the technique was too restricting. There was a clear disregard for musical rules and regulations and scepticism for partisanship to any one group or movement. But this meant that Zappa encountered compositional challenges when it

[9] See Delville and Norris (2005) on the idea of Maximalism in Zappa.

came to establishing continuity and forward motion in the orchestral works.[10] Part of Zappa's stratagem was a unique approach to orchestration, isomelic variation, recurring cells, intervallic manipulation and *Chord Bible* harmony. The implementation of these techniques showed that melodies, rhythms and chords could be scattered throughout a given piece appearing rearranged in a number of ways.

Zappa also incorporated serial transformations. He had knowledge of serial music and had experimented with it during his formative years as a young composer, and although he expressed an interest, it was never fully integrated.

> When I first started off writing, it was just writing. It was a graphic concept. Then I found out about 12-tone music, and I thought, "Oh, great. Now all I have to do is keep all 12 notes in order and there's no problem, and you don't even have to worry about what it sounds like because the intrinsic value is determined arithmetically by how nicely you've manipulated all these 12 notes and making sure you don't hear note number 1 until number 12 gets its turn." I was doing stuff like that at 17 and 18 years old. I finally got a chance to hear some of it, and I really didn't like the way it sounded, so I stopped doing it. I had heard some 12-tone pieces by other composers that I liked, which is one of the reasons why I went in that direction, but as a system it was too limiting for me. I asked myself the basic question: If the intrinsic value of the music depends on your serial pedigree, then who in the fuck is going to know whether it's any good or not? Only the people who sit down with the score and a magnifying glass and find out how nicely you rotated those notes. And that's pretty boring. So I started moving in the direction of what you might call a more haphazard style.[11]

In the analyses, serial transformations are visible but its implementation is, as Zappa mentioned, "haphazard".[12] Therefore, set theory nomenclature is used but instead adapted to express a freer approach of small set manipulations and permutational activity. I do not attempt to reveal hierarchical relationships of pitch sets to conform to some overarching link for a given composition, because to do so, knowing that Zappa did not approach his compositions this way, would be counter-intuitive. Zappa would employ any technique at his disposal irrespective of whether it would adhere to any pre-established compositional language. And although the analyst must confront a number of challenges it is important to bear in mind something David

[10] See Bernard (2000, p. 92).
[11] Menn, D. 1992. "Zappa!" *Guitar Player*.
[12] This should not be interpreted in a way that suggests Zappa's overall compositional process was haphazard too, the implication here is that one of the many techniques incorporated into the compositional procedure did not fully adhere to its strictures. The deliberation in design of which I present in my thesis is related to its assembly.

Ocker (Zappa music copyist 1977-84) told this author in relation to these challenges and that is, "composers come first, then musicologists".[13]

Zappa rarely defined the theoretical processes of constructing his orchestral compositions, often resorting to idiosyncratic language. This may be attributable to his position in the rock music industry; rock music interviewers seldom had the capacity to understand the type of far reaching technical skills required to write large-scale orchestral pieces of music. On the occasion when Zappa was interviewed by a journalist who understood music theory concepts, the composer could be quite accommodating and revealing.[14] In terms of chord theory he was lucid, and even described some of the structures he used in his compositions. As a consequence, the analyst is assured by relying on the *Chord Bible* for analytical purposes. There is a catalogue of chords used in the orchestral pieces and are identifiable as *CB* members based on repeated use of common structures in different pieces. Some of these structures were explained by the composer and thanks to Clement's analytical work on this technique we can identify instantiations of it within the compositions. However, in certain pieces there is evidence to suggest that *CB* usage became more refined over the years, culminating in 1984 with "The Perfect Stranger", a piece of music that is dominated by the octatonic scale and exemplifies a strong parity between melody and chords in which melodic notes can be unravelled from their supporting chords. This piece is the strongest example of non-diatonic melodic and chordal accompaniment compatibility and is the premise on which Clement bases his interpretation of progressive development of the *CB* technique. In this context the approximation of *CB* evolution from 1977-84 is convincing.[15] Earlier non-diatonic examples show less parity between melody and harmony and are quite difficult to define in terms of the

[13] David Ocker, email message to author, March 18th 2015.
[14] See Forte (1979).
[15] According to Clement, "Sometime around 1977, Zappa began searching for a method to better integrate his non-diatonic melodies with their chordal accompaniments. His solution to this harmonic "problem" was the Chord Bible" (2009, p. 198).

logic behind implementation. This is a problem I attempt to explore in “Bob in Dacron”. In fact, if we consider the ‘evolutionary context’ of greater parity between melody and harmony and a more consistent application of *CB* harmony, whereby practically every chord within a piece can be accounted for, then “Bob in Dacron” would represent an earlier example. It demonstrates a looser application of *CB* harmony, one that is almost still in development. There is a valid reason for this assessment because if we take into account that the *CB* was in use from 1977-84 and that “Bob in Dacron” was composed between 1971 and 1979 it becomes symptomatic that an inconsistent application of the technique would be revealed in the analysis. While the overall structure of “The Perfect Stranger” relies on *CB* utility for continuity and consistency, “Bob in Dacron” relies on intervallic permutations with a ‘still in development’ use of the *CB.*

Another important consideration is that parts of compositions were written at different times, therefore susceptible to different approaches. This suggests that compositions were not fully realised in one allocated time frame, that is where the composer sits and writes an entire composition from beginning to end in one go. It is without doubt that Zappa wrote many of his pieces over a period of time, working on sections here and there, sometimes revisited over many years, “Bob in Dacron” is a good example. Seen in this context, *conceptual continuity* takes on even more significance, particularly if one interprets time incongruence as forming part of an organic whole. For Zappa, the problem of solving or conceptualising music and time incongruence was important. Whether it was opposing musical styles forced together within any given composition or the concept of *xenochrony* where two pieces of improvised music from different times and places could be presented simultaneously. In the orchestral pieces, the fact that fragments and sections of music could be composed at different points in time and then assembled into one composition at another point in time demonstrates another type of incongruity. More importantly, it exemplifies the skill that Zappa had for assembling his

musical ideas from various sources and times (see Gardner 2013).[16] This further emphasises the importance of analysing Zappa's music with these concepts in mind.

Weights, Balances, Measured Tensions and Releases

Zappa conceptualised his compositional approach in relation to "a system of weights, balances, measured tensions and releases".[17] Based on Calder mobiles, Zappa explained that, "[a] large mass of any material will 'balance' a smaller, denser mass of any material, according to the length of the gizmo it's dangling on, and the 'balance point' chosen to facilitate the danglement".[18] In other words, "[t]wo equal volumes of different materials may have different densities, but they can be made to balance each other by adjusting their distance from a fulcrum which can be measured by wire vectors".[19] A non-motorised Calder sculpture is driven by air currents, and the speed at which it moves is dependent on air movement and temperature, thus adding another dimension to its design.[20] The idea is that there exists an unknown quantity, which is the movement of the mobile determined by an ever changing environment. For Zappa, no matter what material is balanced at relative positions, the equilibrium secures the compositional unity. The parallel conceptuality between Calder and Zappa's structures is striking, Calder, on his methods of construction explained:

> I start by cutting out a lot of shapes . . . Some I keep because they're pleasing or dynamic. Some are bits I just happen to find. Then I arrange them, like papier collé [paper collage], on a table, and 'paint' them—that is, arrange them, with wires between the pieces if it's to be a mobile, for the overall pattern. Finally I cut some more of them with my shears, calculating for balance this time.
>
> I begin at the small ends, then balance in progression until I think I've found the point of support. This is crucial, as there is only one such point and it must be right if the object is to hang or pivot freely. I

[16] Gardner, J. 'Zappa and The Razor: Editing, Sampling and Music Concrete', in Carr, P. (ed.) *Frank Zappa and the And*. Surrey: Ashgate, pp. 67-84.
[17] Zappa, Frank & Peter Occhiogrosso. 1989. *The Real Frank Zappa Book*. London: Pan Books Ltd.
[18] Ibid, p. 163.
[19] Petroski, H. 2009. 'Once an Engineer', *American Scientist*, 97(4), pp. 282-285. *jstor* [online]. Available at: http://www.jstor.org/stable/27859353 (Accessed: 31 January 2016).
[20] Alexander Calder was an American artist who designed mechanical structures made up of flat metal shapes suspended by wires from movable rods, which allowed for rotation. The revolving parts created a visual experience of constantly changing volumes and forms that became known as mobiles. *Britannica*. 2016. Available at: http://www.britannica.com/art/mobile-sculpture (Accessed: 31 January 2016).

> usually test out this point with strings to make sure before bending the wires. The size and angle of the shapes and how to use them is a matter of taste and what you have in mind.
>
> I feel an artist should go about his work with great respect for his materials. Symmetry and order do not make a composition. It is the apparent accident to regularity which the artist actually controls, by which he makes or mars a work.
>
> To most people who look at a mobile, it's no more than a series of flat objects that move. To a few, though, it may be poetry.[21]

The appropriation of the means by which Calder built his structures with that of Zappa's musical structures is plausible if we consider that Calder's shapes could represent Zappa's orchestral sketches. Just as Calder assembles various shapes in the initial stage of construction, Zappa's sketches are assembled and arranged in a similar way. The assumption at this point is pertinent to Zappa's compositional approach of accumulating sketches over a period of time and the subsequent organisation of these sketches into a complete composition. This process would inevitably engender the application of transitional points between the various sketches. In some cases, where Calder cut and added more shapes to his already existing pre-formed ones in order to 'calculate for balance', Zappa might proceed in a conceptually similar way in order to connect sketches more effectively, facilitating the transition from one sketch to another. Once the preliminary point of balance had been found between the transitions and sketches, Zappa could test the composition. This would be achieved by requesting his smaller ensembles to perform or record parts of the composition before assigning it to an orchestra, an example of this is "Mo 'n Herb's Vacation". A reduced version of the "First Movement" was performed by just three of Zappa's 1978 ECE members. Some years later, Zappa took parts of "Mo 'n Herb's Vacation", essentially parts which were conceived and destined for the orchestra and overdubbed them in the recording studio. Before the 1983 London Symphony Orchestra performance, the "First Movement" was actually recorded in Zappa's recording studio where David Ocker and John Steinmetz had overdubbed clarinets and bassoons with Chad

[21] National Gallery of Art. 2016. *Calder's Balancing Acts*. Available at: http://www.nga.gov/content/ngaweb/education/teachers/lessons-activities/counting-art/calder.html (Accessed: 4 March 2016).

Wackerman later added to overdub the drum parts.[22] This incarnation would have at least allowed Zappa to hear the harmonisations he had written, sort of a test pilot perhaps, before the full-on orchestral interpretation. So again, an alignment can be made with Calder in how he would first test his structures by using string to connect the shapes before bending wires, testing the balance point before committing to the final structure.

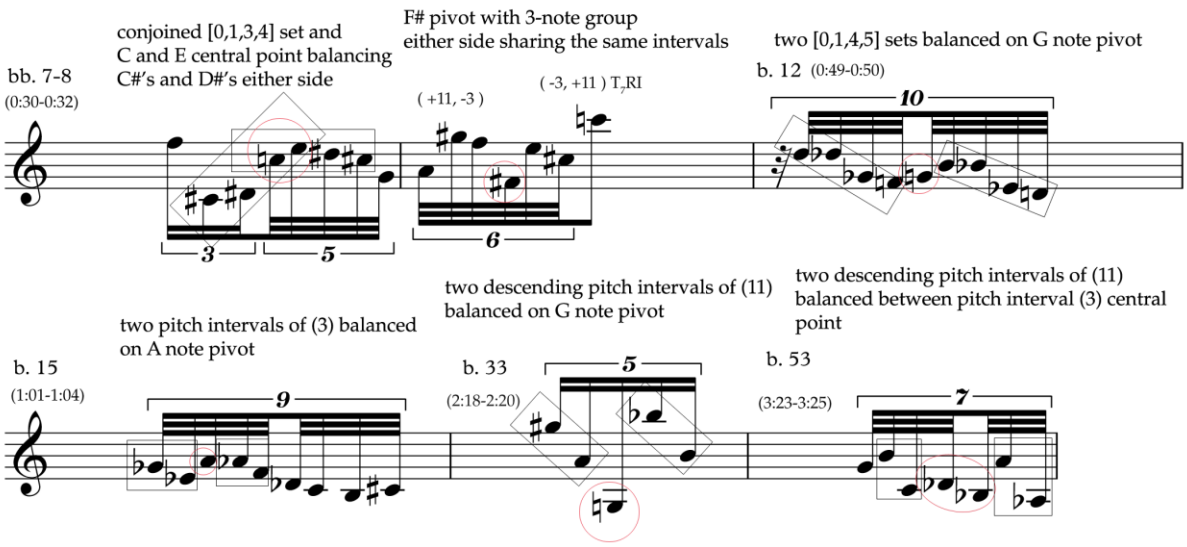
Calder also explained that, "[t]he size and angle of the shapes and how to use them is a matter of taste and what you have in mind".[23] This philosophical account is attributable to how Zappa would go about decorating each sketch in terms of orchestration, at the same time with possible modifications made to melodic, harmonic or rhythmic structures. In addition, Calder's remark that, "[t]o most people who look at a mobile, it's no more than a series of flat objects that move. To a few, though, it may be poetry", correlates with the possible interpretative variance of Zappa's orchestral music; dissonant clatter or well-crafted design.[24] In discussing incongruity in music, Zappa stated that, "[t]hat's the way I like to hear music, I like things next to each other that at first seem incongruous, but then when you step back into the whole thing you see it fits together properly."[25] This statement most certainly resonates with the conclusion one could make by observing a Calder mobile, a structure that at first seems to convey a visual imbalance with a variety of differently sized forms and shapes appearing to float at odds with each other. However, on closer inspection we gain an appreciation of the delicate balance achieved by a meticulous process of construction.

[22] alt.fan.frank-zappa. 1994-95. *The David Ocker Internet Interview*.
Available at: members.shaw.ca/mitb/ocker/#orch (Accessed: 5 March 2016).
[23] Ibid.
[24] National Gallery of Art. 2016. *Calder's Balancing Acts*.
[25] Zappa, Frank. *The Frank Zappa Interview Picture Disk*. UK: Baktabak (release date unknown).

EXAMPLE 2.3. A Calder Mobile.[26]

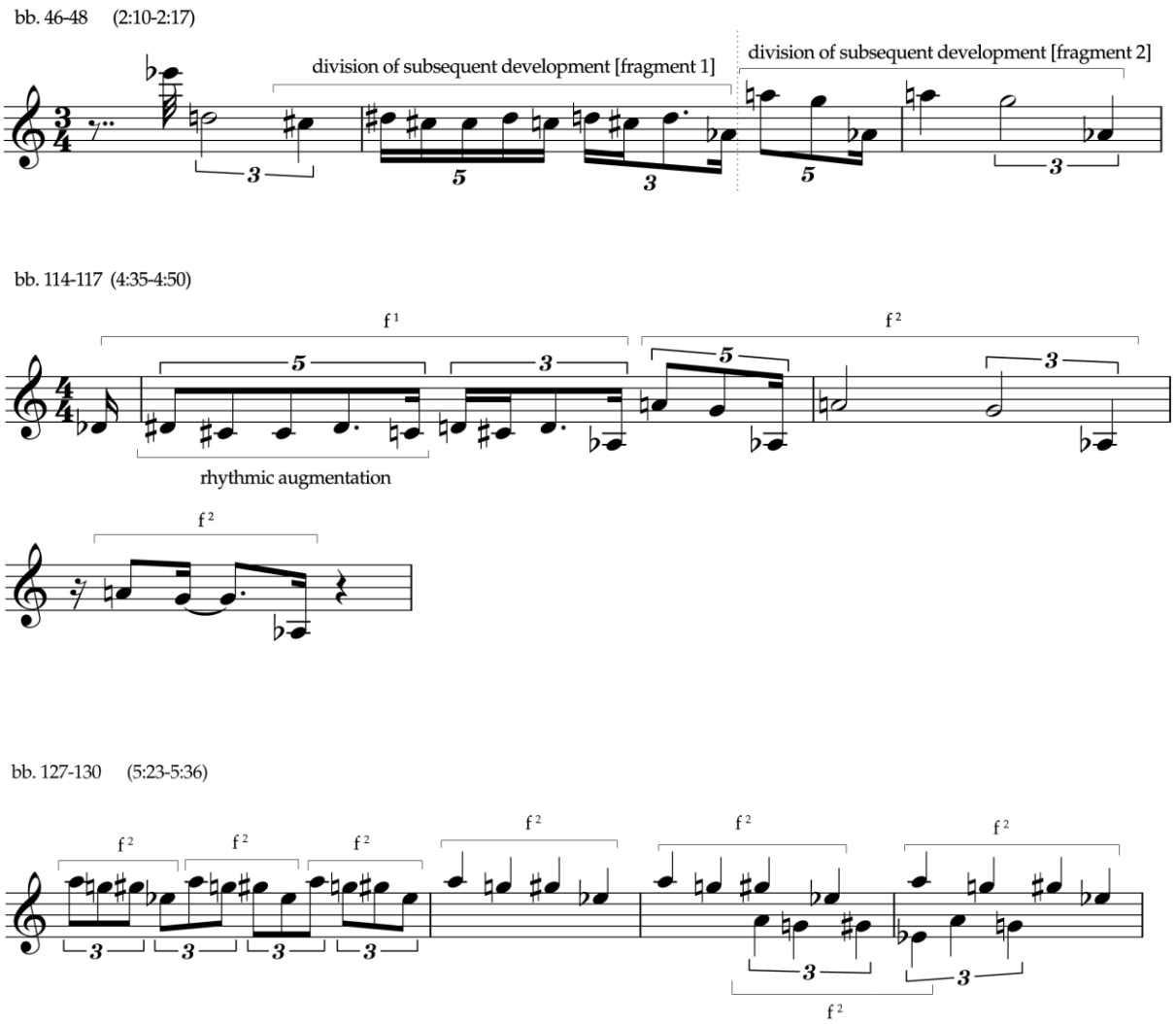
So what does this mean in terms of Zappa's orchestral music and how does it translate? Interestingly, some real-life musical examples will actually fit into this paradigm quite well. Attributes of balance in Calder's Mobile can be seen to resonate with micro structural examples presented herein. The extract below from "Mo 'n Herb's Vacation – First Movement" is illustrative of this concept where corresponding pitch classes are balanced either side of central notes. These balanced micro structures are interesting because they are organised by corresponding note groups that orbit around a central fixed point. The fixed point is referred to as a pivot as it acts to stabilise the equivalency either side, but also to differentiate from pitch-class axis of symmetry.

[26] Alexander C. 1950. *Yellow Sail* [Sculpture]. Weatherspoon Art Museum [Online]. Available at: http://weatherspoon.uncg.edu/blog/tag/alexander-calder/ (Accessed: 29 February 2016).



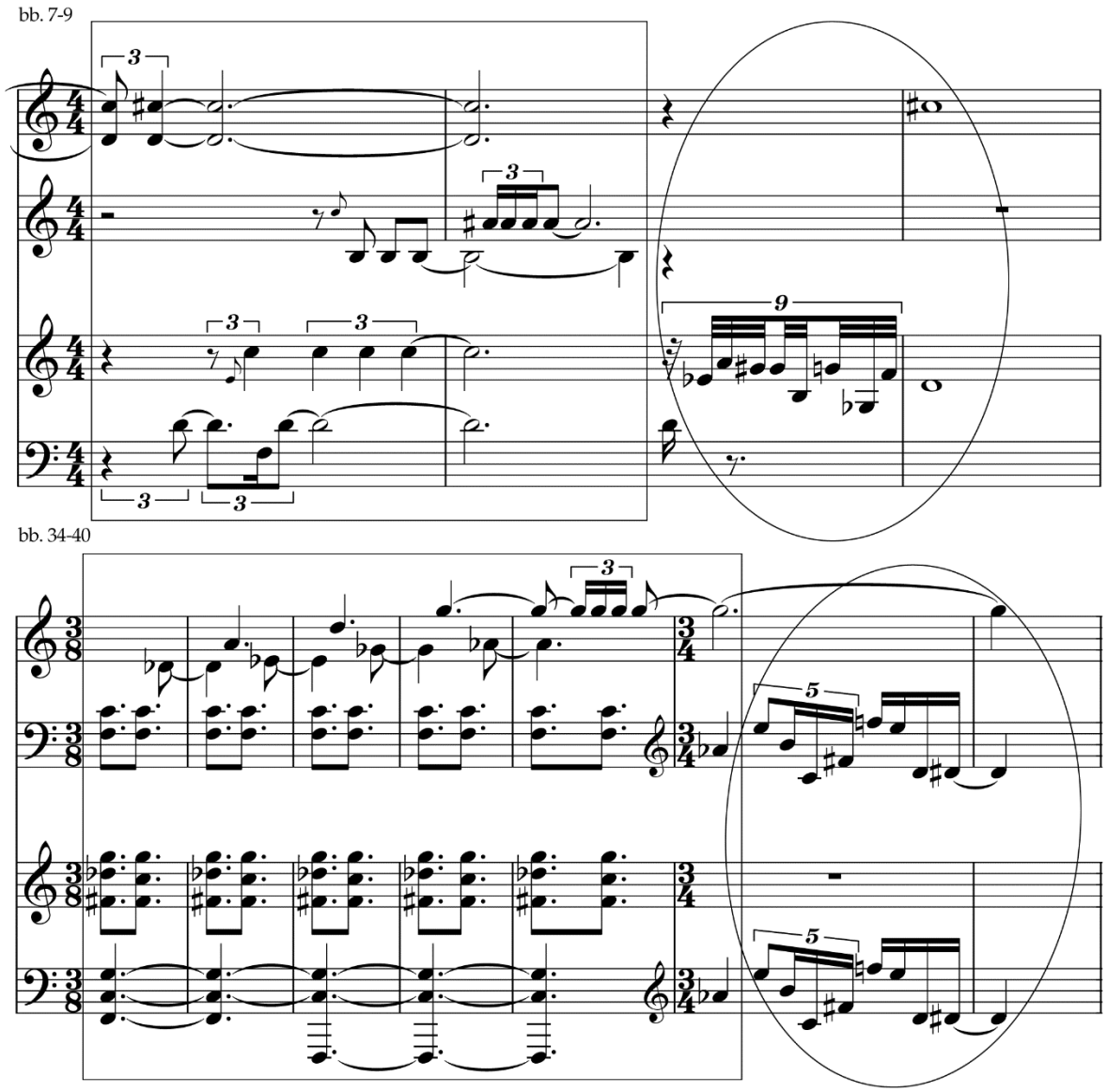
EXAMPLE 2.4. Extract from "Mo 'n Herb's Vacation – First Movement" – Pivots and Balances.

Another perspective is the manner in which Zappa instigates a theme that is subsequently divided into two parts with each dependent on individual forms of development. The way each fragment is developed depends on the balance between its route of progression and local musical regions as well as the long range considerations from whence the theme began to where its two-part fractures end up. This has the potential to align with the concept of different volumes of mass balanced against each other. One mass is the theme while another is its derivatives which then balance another mass made up of the derivations of the derivatives. For example, in "Pedro's Dowry", at bb. 46-48 (ex. 2.5), the first theme is stated then subsequently divided into two fragments whereupon the second fragment is further developed. As the second fragment branches off at bb. 127-130 it continues its development from which further variations are created. This is exemplary of the conceptual allusion of the Calder mobile where an object on one side of the balancing wire is counterbalanced by smaller multiple objects that branch off into further derivations.



EXAMPLE 2.5. "Pedro's Dowry", Divisions and Development of the Theme.

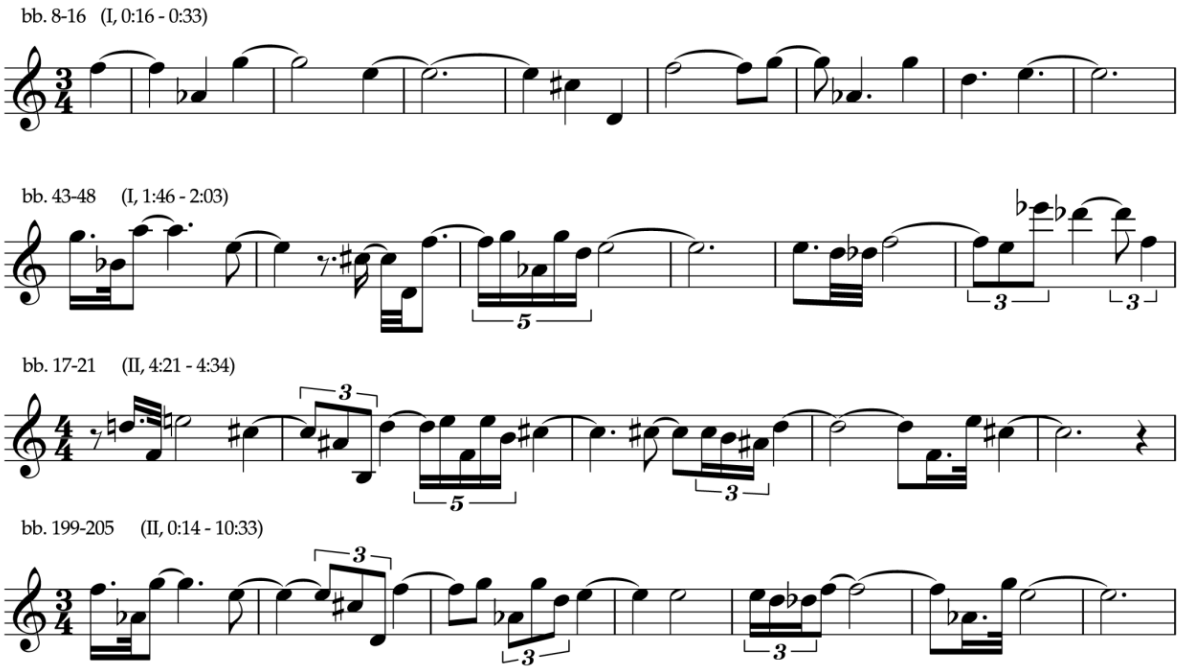
In some cases, the overall contour and shape of a passage can be recursive. The comparative illustration of two passages from "Pedro's Dowry" below show that in the first instance at bb. 7-9 (ex. 2.6) the bassoon, oboe, English horn and flute partake in a sequence of note overlaps. This is an almost skeletal form of the subsequent instantiation where the overlaps reach to a semiquaver-note triplet figure that is followed by a quick succession of notes, in this case a demi-semiquaver nonuplet which is then proceeded by sustained notes. At bb. 34-40 the same overall shape prevails.



EXAMPLE 2.6. "Pedro's Dowry", bb. 7-9 and bb. 34-40 Comparative Shape and Contour.

Other forms of balancing procedures are found in the use of *isomelism* and by creative orchestration. In "The Perfect Stranger" the main theme is diffused several times across the piece with each instantiation a variation of its predecessor which exhibits a long range balance. Conceptually attributable to a Calder mobile where objects are further apart along the fulcrum yet maintain the balance. The main theme in the first instance is performed by the string section from bb. 8-16 and is repeated as an embellished isomelic variation between bb. 17-21 in the

second movement. At this juncture the main theme is played by the oboes and harp and is a delicate enactment, it is reinstated from bb. 199-205 in the piano, tuned percussion and trumpet and appears more forceful. Each instigation of the main theme is not only considered a variation on the theme but also responds to local activity which in turn affects the choice in orchestration. So balance is established not only by long range repetition and variation but also in orchestration that is dependent on local musical events.



EXAMPLE 2.7. "The Perfect Stranger", *Isomelism* and Orchestrated Balance.

The illustrations of these forms of balance are merely a way of partly elucidating the conceptuality of Zappa's approach to composition. While these examples show only a small proportion of the multiple ways Zappa's system of weights, balances, measured tensions and releases can be employed, it is all the same, quite illuminating in the potential for clearer presentation of how these conceptual elements translate. The means by which Zappa established "weights, balances, measured tensions and releases", is an intriguing blend of

varied repetition, orchestration, rhythmic irregularity, pitch class diversity and dense chord structures.

Why Formal Analysis?

The prime purpose of this study is to reveal structural facts pertaining to the music; essentially how it is assembled and what procedures have been used to create a particular sound. I do not set out to offer some unifying reductive theory of Zappa's music, only to unify habitual compositional tendencies across a selection of his works and how the process may be adapted to a larger body of work. While acknowledging the overall concept of the works, it is an investigation into how the composer resolved musical problems. And so I am interested in the mechanics of the music; the assemblage of ideas, the challenges of unifying disparate elements, the function of chordal structures and melodic development.

Zappa's orchestral music appears quite confounding, and the analyst is faced with many questions that at times seem almost impossible to answer. Why is the music written this way? What is the purpose of unfulfilled symmetry? Why bury so deep into the musical fabric important recurring themes so that they are rendered inaudible yet identifiable in the score? How much of the music is assured or speculative? Did Zappa write music to paper without knowing how it would sound until realised by an orchestra? Why in some instances, does intervallic manipulation override melodic form? What is the thinking behind rapid successions of *Chord Bible* harmony? Is it planned or randomised? What compositional methods in harmony did the composer use to establish continuity before the *Chord Bible*? These are questions I attempt to answer by way of meticulous analysis of four important orchestral compositions, "Pedro's Dowry", "The Perfect Stranger", "Bob in Dacron" and "Mo 'n Herb's Vacation". Ultimately, the methodology I have employed is not intended to be an absolute. In fact, there are potentially a number of different ways to analyse Zappa's music. However, the

task is very complex and the limited music analytical work on Zappa is probably illustrative of this. I do however contend that irrespective of the possibly inelegant analytical interpretation of the works herein, the approach illuminates a consistency in Zappa's music.

Suggestions for Reading Analyses

Although I have endeavoured to indicate CD running times in the musical examples throughout, partly to aid the reader and listener with navigating both notation and audio, it is probably best practice where possible to have the scores at hand as you read through the analytical chapters (especially between pp. 207-211 in Chapter 6). At the time of writing, many of Zappa's orchestral scores are still unavailable to purchase, so in some cases it might be difficult to obtain them for the purpose of following these analyses. Nevertheless, the analyses can still be followed and understood by simultaneously referring to the score extracts within this study and listening to the audio recordings.

CHAPTER 3

Pedro's Dowry

In the analysis of "Pedro's Dowry", I shall demonstrate how themes and recurring fragments are manipulated throughout the piece. The analysis shows that the cultivation of themes and fragments is idiosyncratic; a theme or fragment may be stated but not necessarily fulfilled at the local level (close regional parts of the piece), but rather diffused throughout in multifarious ways. For instance, themes or fragments can be divided whereby their divisions go on to form further divisions subject to re-orchestration, harmonisation or *isomelism*. This is a common compositional trait in the selected pieces herein as we will see. In "Pedro's Dowry" however, the re-emergence of a theme or fragment can either be conspicuous or concealed. The apparent concealment of these musical ideas will be highlighted to show correlations which are identifiable in the score yet difficult to hear in the music. I shall also analyse the use of successively fixed intervallic chords.

"Pedro's Dowry" was first performed by The Abnuceals Emuukha Electric Symphony Orchestra at Royce Hall UCLA Los Angeles 1975. The performance did not appear on record until *Orchestral Favorites* was released in 1979. A second version of "Pedro's Dowry" was recorded by The London Symphony Orchestra in 1983 and appeared on *The London Symphony Orchestra - Zappa Vol. I* (1983) album released on Zappa's own label Barking Pumpkin Records. The two differ in that the *Orchestral Favorites* version is performed by a small orchestra with certain leading characteristics of instrumentation, the most salient being the use of clavinet, a prominent sounding electric bass, and an electric viola played through a wah wah pedal. The *LSO* version has some arrangement differences and is performed by a larger orchestra, and apart from drum set, retains mostly conventional instrumentation. In this analysis, reference will be made to both the 1975 full orchestra score and the 1984 conductor

score to compare similarities and differences. It is also worth noting the discrepancy between recordings and scores; in the original *Orchestral Favorites* recording, the music at (0:22–1:12) is not presented in either the full or conductor scores. The recording remains synchronous with the scores until b. 7 at which point there is no correlation between music and notation. Synchronicity is regained at (1:12) in the recording and at b. 23 in the scores. This disparity is not uncommon as Zappa was renowned for revising music and scores to accommodate various performance situations.

Zappa intended "Pedro's Dowry" to be a ballet, but on its initial performance in September 1975, he explained that to have staged a production would have been too expensive so he recited the story on stage prior to its performance: "A woman waits at the window for her lover. He arrives with an inexpensive guitar. She puts on some more lipstick. The woman mixes him a stimulating drink. An ashtray is overturned in the midst of their heated love-making".[1] A more detailed account of the story was to appear in the programme notes for the LSO performance at the Barbican in London in January 1983, but the ballet performance was not realised until June 1984 at the 'Zappa Affair' event in California when The Berkeley Symphony along with other Zappa pieces, performed "Pedro's Dowry" with dancers and puppets. Although it is possible to conceive of themes as representational of characters and incidents or musical textures for a particular scene, it is difficult to be categorical about this because Zappa did not provide any specific reference to those musical constructs belonging to anything in particular. The only example of music and narrative alignment is at bb. 24-32 in the viola and trombone *glissandi* depicting a pantomime duet between a woman and Pedro.[2] Apart from a mere summary of events contained in the programme notes and this author not

[1] Goldberg, RL. 1975. 'Zappa Gives UCLA Audience the Bird', *Daily Trojan*, 68(1) pp. 5, 8.
[2] LSO Programme notes 1983, p. 13.

having experienced the narrative played out in its visual representation, the idea of commenting on matters pertaining to leitmotif for instance would simply be a case of speculation.

Themes and Fragmental Development

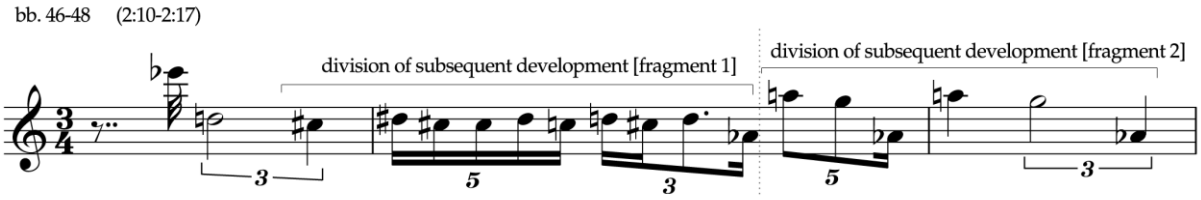
Thematic and fragmented iterations are non-sequential and dispersed at various points throughout. Manipulations of prior instantiations, these iterations undergo a process of either contraction or expansion and evolve at different rates. The first instance of a theme is followed by a new unrelated theme that goes on to develop at its own rate, however the latter might be intercepted by the incomplete development of the first. It is the same for thematic fragments which are stated but on reinstatement interrupted and superseded by a new one that then becomes subject to further variation procedures later on.[3] Generally, themes and their fragmental derivatives tend to be prominent and are mostly defined by a unison line with relatively static rhythmic and harmonic accompaniment, whereas non-thematic fragments can be obscured by their interaction with dense harmonic activity. Although themes and fragments behave in a similar way, where variation is contained within each subsequent and evolving instantiation, non-thematic fragments are concealed and less residual. For example, the fragment in b. 2 of the piece only reveals its relative importance at bb. 24-32, yet at the time of its instigation appears to be more of a local introductory embellishment. Therefore, I have refrained from labelling it a theme as that generally infers a prominent and memorable event which during the course of the composition develops contiguously. Instead I have opted for *initial fragment* as it seems more appropriate due to its presentation as something that emerges gradually, the ambiguity of which allows latitude for greater compositional flexibility later on. The themes and fragments do not constitute the formation of an overarching basis for the

[3] It is important to note that in the analysis, when a theme is divided (as in ex. 3.3), each division is labelled a fragment. These fragments derived from a theme then take on thematic qualities of their own where each fragment of a theme initiates a new path for development.

composition, they appear to be complimenting contrasting musical events, but also lending some sense of unity and coherence in the unfolding of the piece.

As mentioned, the location of subsequent derivations of themes and fragments are not adjacent and are more indicative of long-range association.[4] Straus (1987) stressed the importance of an 'associational model' in the analysis of post-tonal music in general where, "[m]usical tones separated in time may be associated by a variety of contextual means, including register, timbre, metrical placement, dynamics, and articulation. Associations of this kind draw together elements separated in time and create coherence."[5] Within this model, it becomes a question of determining the themes and fragments as progressive alterations or as something germinal to subsequent themes and fragments. In Zappa's case both are applicable as progressive alterations and germination can function independently or simultaneously.

Theme 1

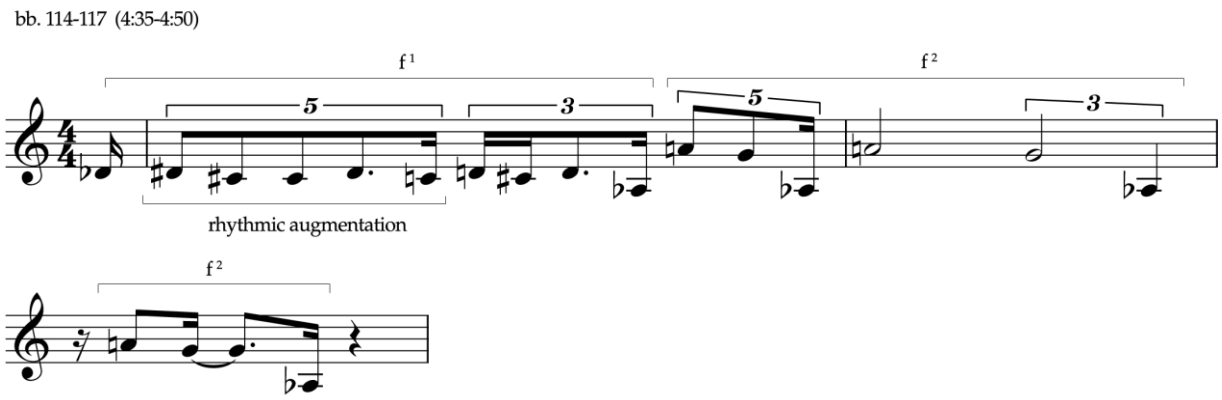


EXAMPLE 3.1. Theme 1, bb. 46-48.

In bb. 46-48 (ex. 3.1), a short theme is introduced. Although short, it is relatively significant because it is subsequently divided into two parts with each part subject to further development. If we consider the theme as a division of two fragments we notice how each one takes on a new

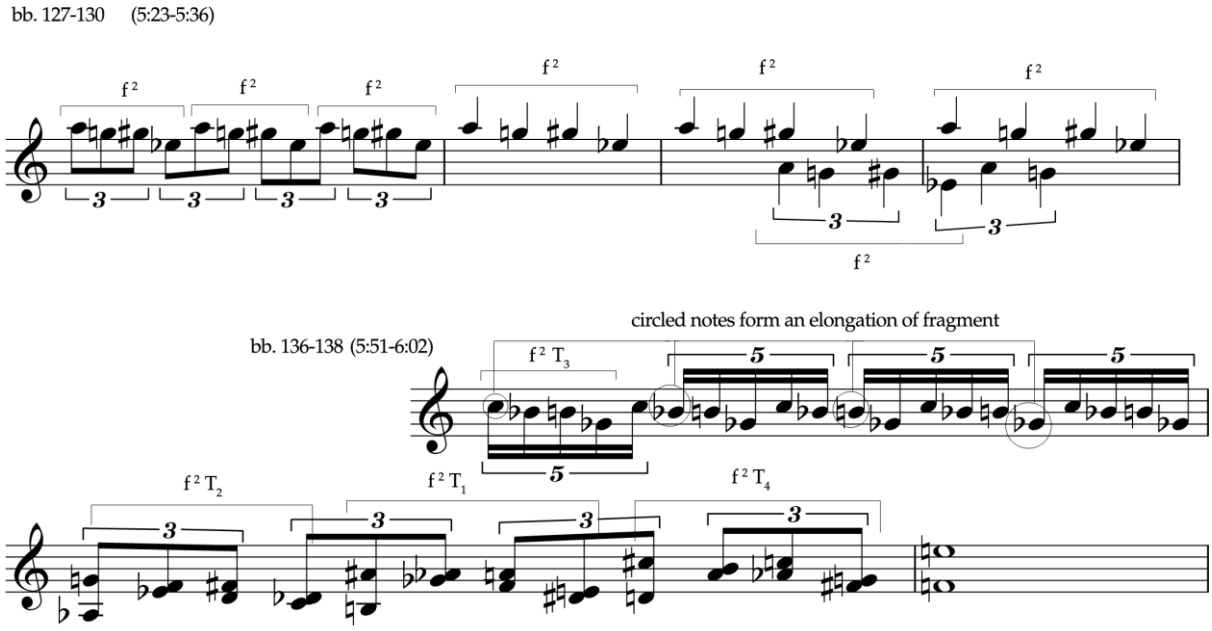
[4] In *The Problem of Prolongation in Post-Tonal Music*, Straus proposes more of an associative type of analysis whereby register, metrical placement, duration, dynamics, instrumentation are attributes connected to others throughout a given piece. In applying associative methods to Webern's *Concerto for Nine Instruments* (1934), Straus explains: "defined statements of set-class 3-3 [(0,1,4)]… constitute an associative middleground in which pitches separated in time are linked in some musical domain". (Straus 1987, p. 15).
[5] Ibid., p. 13

form. In bb. 114-117 (ex. 3.2), the first fragment of the theme is rhythmically augmented while the second is repeated with variable rhythmic instantiations. The second fragment becomes the source for new thematic material in bb. 127-130 (ex. 3.3) but takes on more of an accompanying role. Stated consecutively within three different rhythmic units it is the precursor for a similar idea employed from b. 136 where it is repeated successively. The timbre and rhythm of it is contrasted and varied in relation to its prior instantiation, but this concealment is deceptive and is another example of Zappa's ability to modify existing material that simultaneously shows contrast yet an inextricable link. At b. 136 (ex. 3.3) it is necessary to refer to the development of "*f2*" as a cell, to illustrate the embedded rotation of (C, Bb, B, Gb) contained within the sets of consecutive quintuplets. Since this cell consists of four notes and there are four sets of quintuplets, dividing 20 by 4 gives us 5 complete statements of the cell, with the first note of each quintuplet being an elongation of the cell (see circled notes in diagram). Bar 137 continues with the cell but is rhythmically altered and is played out consecutively over a fixed set of rhythms. The four sets of quaver-note triplets give a total of 12, and divided by the 4-note cell yield 3 complete statements with each subsequent transposed by pitch interval (3).



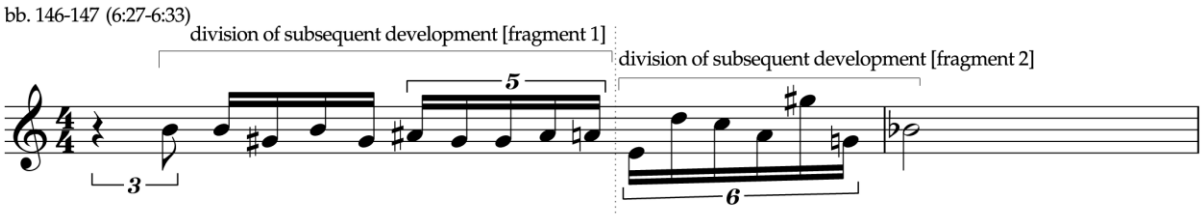
EXAMPLE 3.2. Theme 1 [Fragmented Development], bb. 114-117.

Here is a good example of where a theme can branch out into other musical domains wherein thematic transformations are strategically placed across a given piece. It exemplifies multiple instances of regenerative and expansive procedures of different themes becoming progressively less residual. However, as this occurs, the residuals go on to develop self-replicative and derivative new forms. As we will discover, this constant state of transformation and variation is key to Zappa's approach to composition.



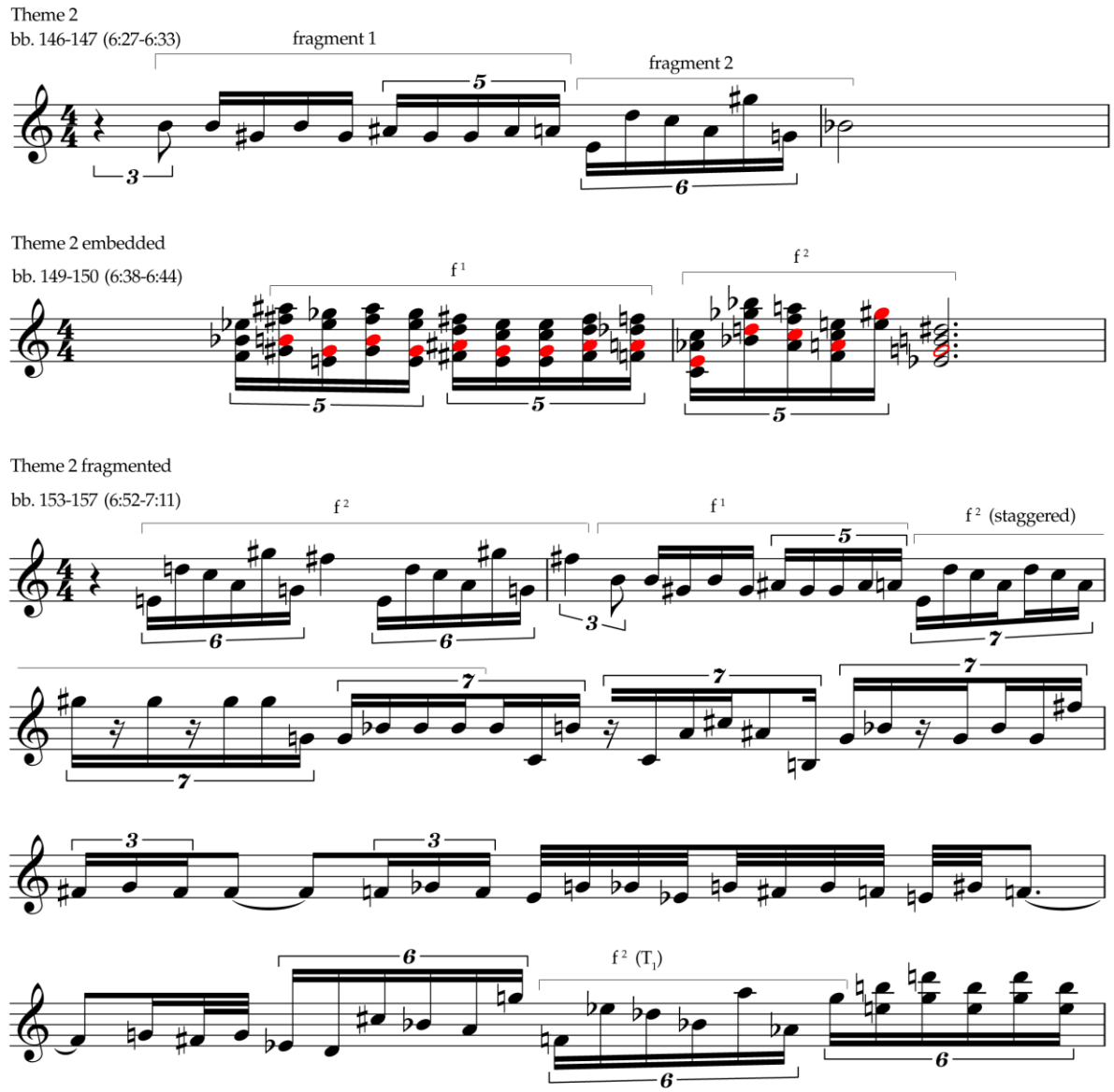
EXAMPLE 3.3. Theme 1 [Fragmental Development], bb. 127-30 and bb. 136-138.

Theme 2

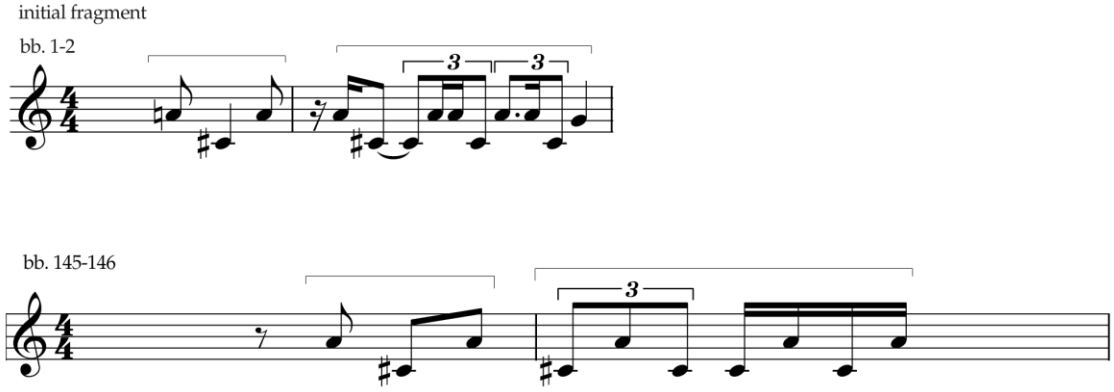


EXAMPLE 3.4. Theme 2, bb. 146-147.

A new thematic statement is introduced at bb. 146-147 (ex. 3.4), and as before is divided into two thematic fragments which from bb. 153-157, are subject to separate developmental procedures. The theme is almost replicated in its entirety in b. 154 followed by a staggered second fragment prolonged by note reiteration of the (G#) and (Bb). The second fragment re-emerges at b. 157 at T_1. This particular theme is elusive at bb. 149-150 where it reappears slightly contracted and embedded in harmony, represented by the red note heads in (ex. 3.5). This unusual placement of thematic material creates an undercurrent that is difficult to detect without the written score. Another occurrence of this is where the *initial fragment* in b. 1 is recapitulated at bb. 145-146, (ex. 3.6) but with b. 146 now appearing as a partial retrograde of b. 2. It is very difficult to identify the recapitulation in the aural and again is an inquisitive musical moment; why embed an important musical figure to the extent that it cannot be identified in the aural?

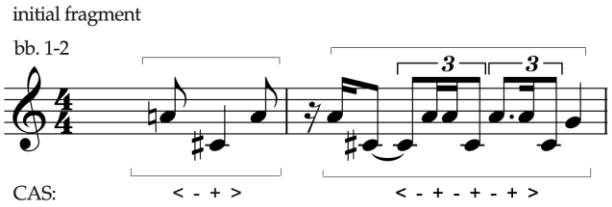


EXAMPLE 3.5. Theme 2 [Extended].



EXAMPLE 3.6. Recapitulation of 'initial fragment', bb. 145-146.

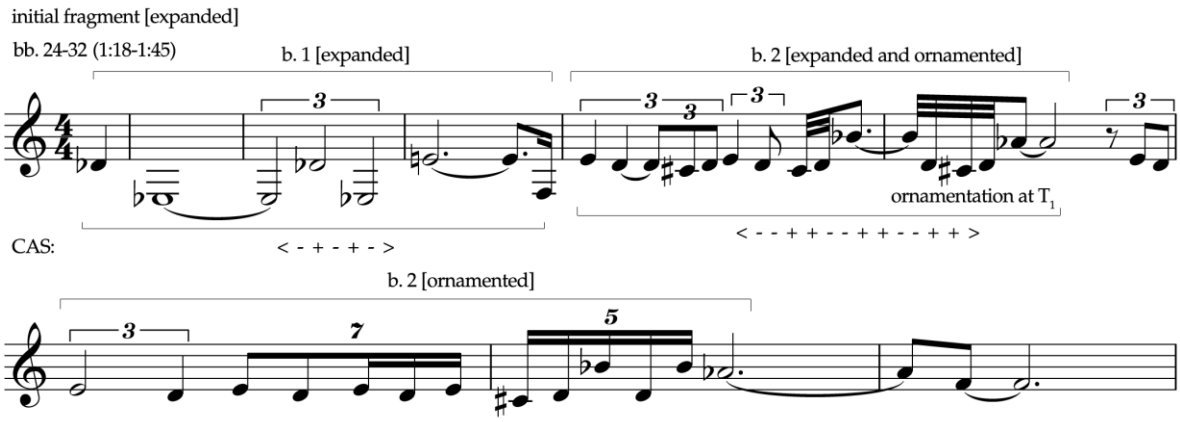
Non-Thematic Fragments



EXAMPLE 3.7. 'Initial Fragment' (1975 score).

The *initial fragment* (ex. 3.7) is a small cell that is performed in the first two bars of the piece. It is a stutter-like alternation between two notes separated by pitch interval (8) that is subsequently extended at bb. 24-32. The *initial fragment* facilitates a kind of germination which now at bb. 24-32, builds and develops. In bb. 1-2, the down-up contour is illustrated in the examples by Contour Adjacency Series (CAS), where the (C#) pivots between the (A) naturals creating pitch interval (8) with a (G) at the end.[6] In bb. 24-27, the *initial fragment* is extended with augmentation occurring in the rhythm and intervallic structure. The rhythm is stretched and the interval play of (8) in the initial is now in the form of pitch interval (10). In b. 28 the (D) is ornamented by (C#) and (E), creating a momentary prolongation before the last 3 notes which appeared in the initial but are now subject to ornamentation at T_1. The contour in bb. 28-29 is a larger version of the contour in the *initial fragment* representing further expansion, drawing it out and playing with the tension that pre-empts b. 31 wherein contains a variation of the preceding two bars.

[6] In the original recording of "Pedro's Dowry" the *initial fragment* played by clavinet ends on (A) at the end of the second bar but in the 1975 score it is presented as (G). In the LSO version the strings perform a (G) at the end of the bar, yet in the 1984 score there is a (A) note. I have chosen the 1975 score with (G) as (G) better represents the initial fragment's augmentation from bb. 24-32.

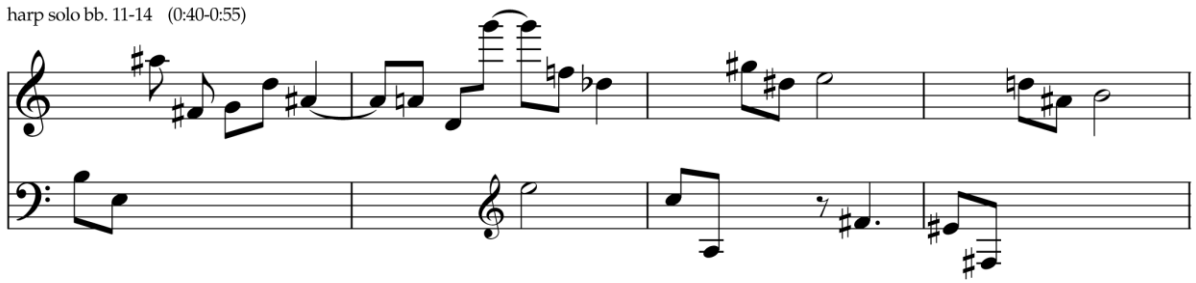


EXAMPLE 3.8. Augmentation of Initial Fragment, bb. 24-32.

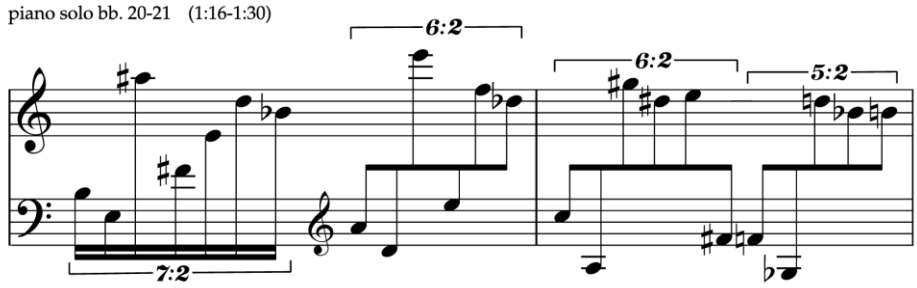
The timbral effect of this expanded fragment exhibits Zappa's use of comic allusion. The viola and trombone are exemplary of the composer's ability for suggesting events or characters by the deployment of interesting combinations of instruments and the use of certain techniques and nuances. "When he [Pedro] arrives [to the ocean front property of a woman] they perform a romantic pantomime duet. She pretends to be a viola. He pretends to be a trombone. She prepares for him a special drink to arouse his passion."[7] The viola and trombone with shared *glissandi* slide around with amusing innuendo of sexual arousal between the two protagonists.

In bb. 11-14 a large fragment is stated in the solo harp, it consists of 24 notes (not including tied notes) covering a range of over 3 octaves. It is then repeated as an isomelic variation in bb. 20-21 in the solo piano, retaining the 24 notes yet this time confined to only 2 bars instead of 4. The quaver notes in bb. 11-14 are at bb. 20-21 replaced with a septuplet, 2 sextuplets and a quintuplet (7 + 6 + 6 + 5 = 24). All notes of the first instantiation are retained with corresponding quantitative equivalency; that is where the number of notes of the fragment are maintained but divided into alternative forms of irregular rhythms (see ex. 3.9a/b).[8]

[7] LSO Programme notes 1983, p. 13.
[8] It is axiomatic that quantitative equivalency is a by-product of *isomelism*, but I illustrate the secondary result here as it is an interesting example of how a simple set of rhythms can be transformed into complex divisions.

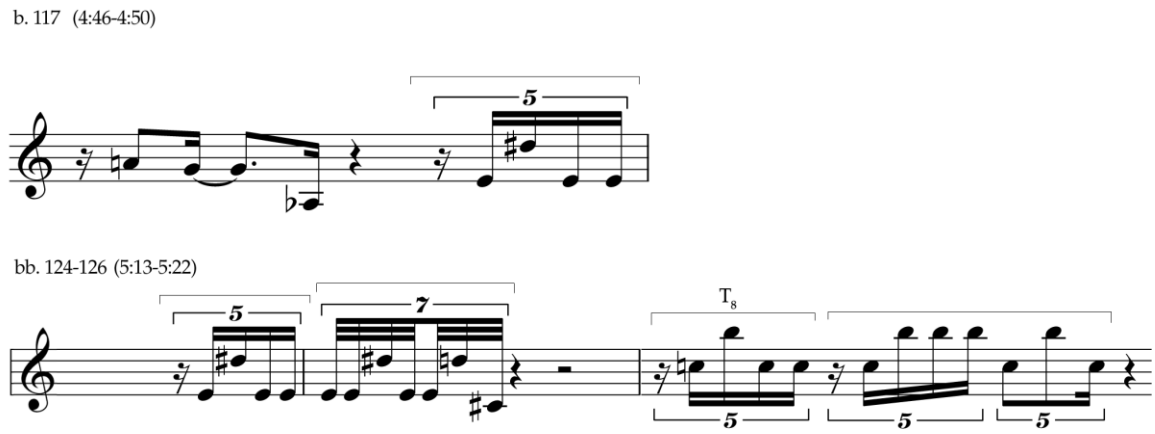


EXAMPLE 3.9a. Harp Solo, bb 11-14 (LSO).



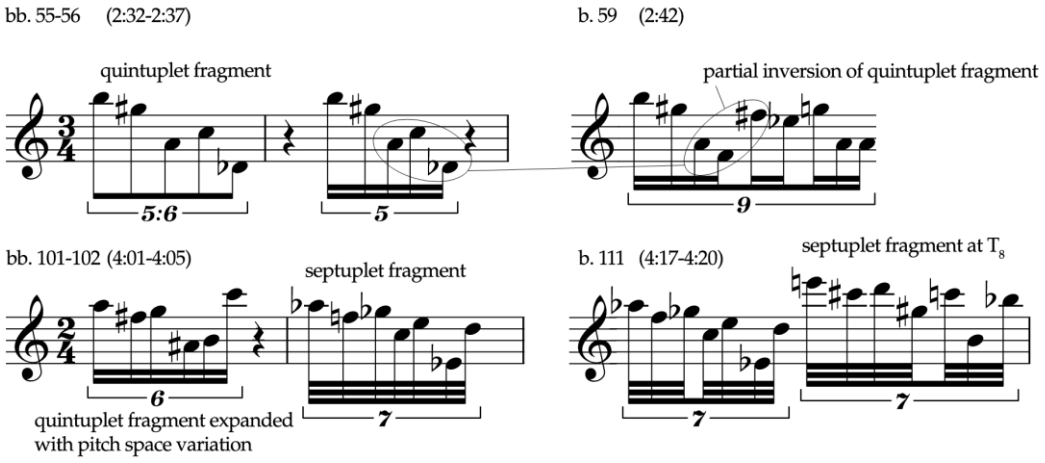
EXAMPLE 3.9b. Isomelic variation of harp solo in piano solo at bb. 20-21 (LSO). (*Note that the (G) notes in the harp are replaced with (E) notes in the piano*).

An integral part of "Pedro's Dowry" is melodic angularity which is projected from the outset with the *initial fragment* and maintained in the subsequent themes. Within each theme the process tends to begin with a succession of notes in close intervallic proximity and then a gradual wider dispersion of them in pitch space. The impression is of a progressively tensioned melodic statement where the wider intervallic leaps create greater tension. The process occurs in both themes of movements two and three in "Mo 'n Herb's Vacation" (see ex. 6. 10 and 6. 19 chapter 6). At other times, wide intervallic leaps are non-progressive and are explicitly emphasised for immediate effect. The way this is implemented in "Pedro's Dowry" is exemplified in (ex. 3.10) where the fragmented quintuplet figure in b. 117 utilises pitch interval (11). In b. 124, the fragment is repeated with no change, followed by an expansion into a septuplet figure with an added note. Bar 126, is the fragment at T_8, again expanded but this time only rhythmically.



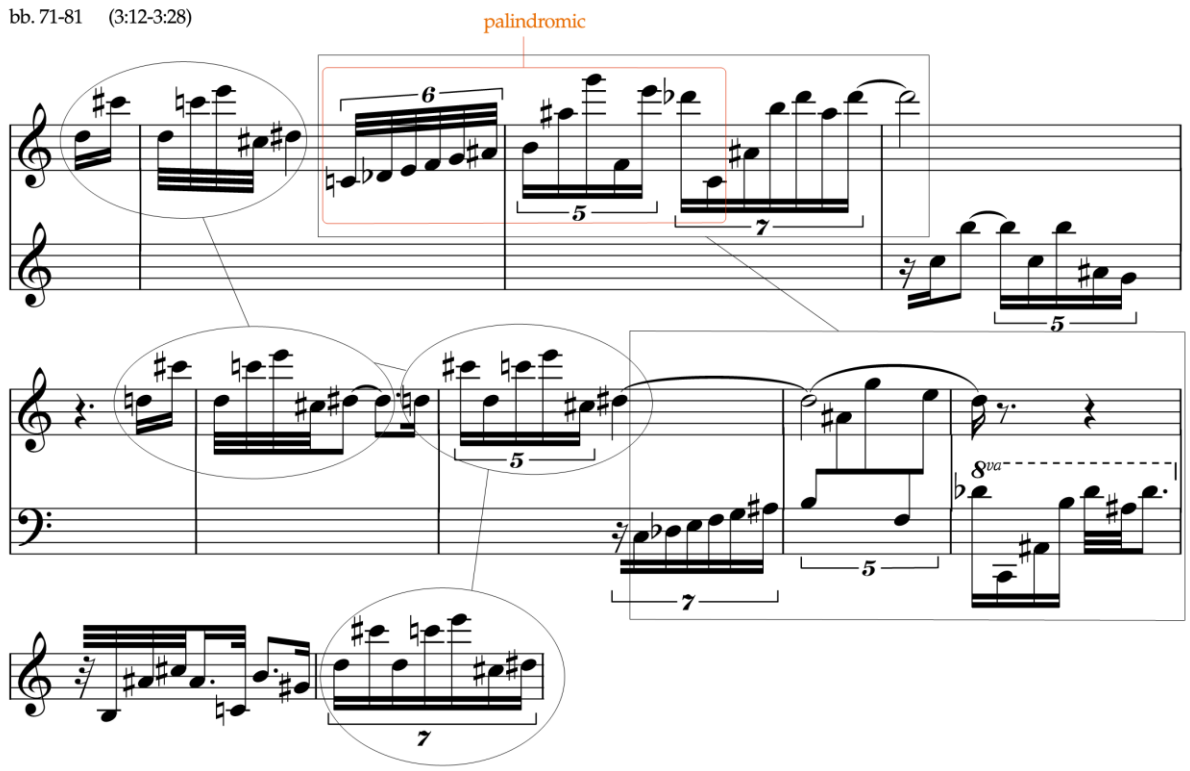
EXAMPLE 3.10. Recurring Fragment [Exploitation of Pitch Interval (11) [b. 117 and bb. 124-126].

Other non-thematic fragments are distributed with each instantiation partially building on a prior iteration. The quaver-note quintuplet at b. 55 is subject to isomelic variation in b. 56 and then expanded at b. 59. At b. 59, the quintuplet has now transformed into a nonuplet and exhibits a partial inversion. In b. 101, the quintuplet fragment is expanded to a sextuplet, with pitch space variation, and the septuplet fragment in b. 102 is pivotal in the sense that it retains part of the initial quintuplet and introduces new material that is developed in b. 111.



EXAMPLE 3.11. Recurring Fragments, bb. 55-56, b. 59, bb. 101-102 and b. 111.

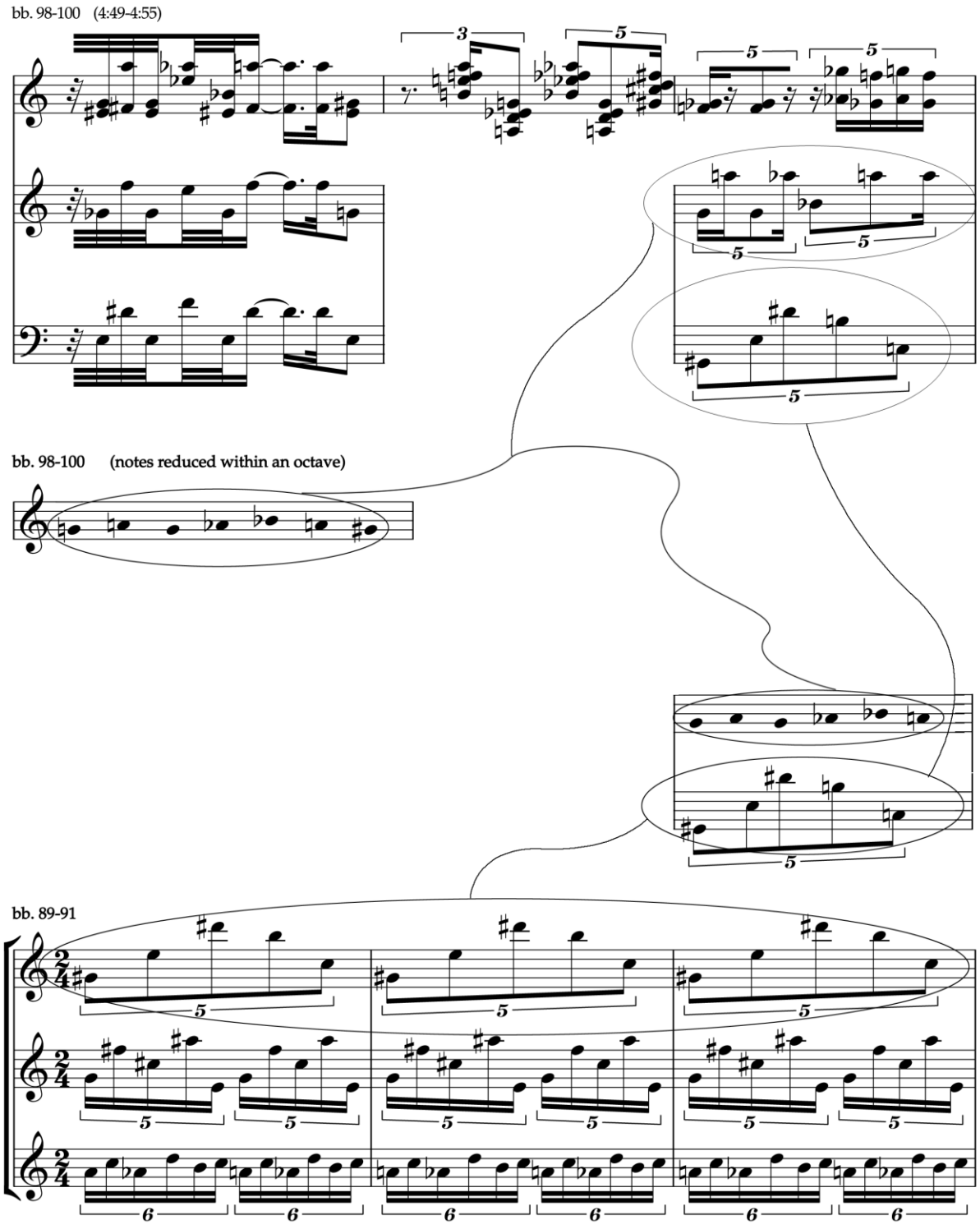
Another example of this occurs between bb. 71-81 (ex. 3.12), where two different statements are repeated; firstly a seven-note melodic fragment maintains its melodic form but is rhythmically varied, and secondly a larger phrase beginning on the last beat of b. 72 is repeated, again with rhythmic elongation. In addition, there is a pitch class palindrome between the two (C) notes.



EXAMPLE 3.12. Localised Recurring Fragments, bb. 72-81.

Bars 98-100 (ex. 3.13) show an interesting distribution of disjunctive lines that create jagged contours. The initial impression at this juncture is of a seemingly impenetrable texture, yet on closer inspection it reveals some unified elements. For example, the top line played by the oboe in b. 98 is repeated in the trumpet and tuned percussion at b. 100, illustrated by the elliptic shapes connected by a wavy line. The quaver-note quintuplet in the bass clef at b. 100 is a replication in a different register of the quintuplet sequence from bb. 89-91. Because these lines are so heavily embedded in close knit harmony and are also partial to octave complementation

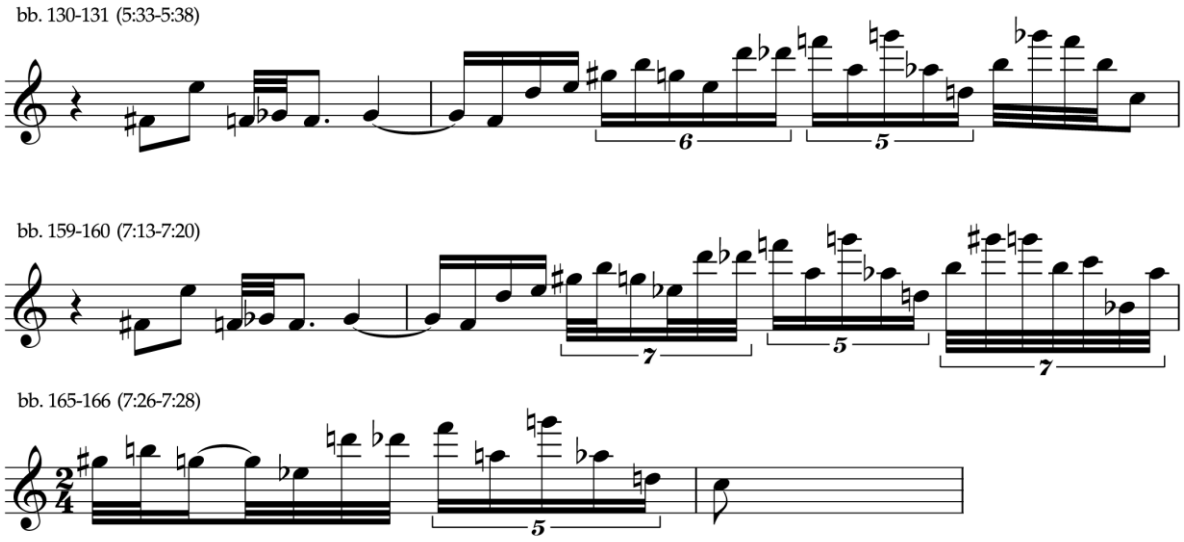
they are rendered virtually imperceptible in corresponding to previous iterations. Incidentally, the top line from bb. 98-100 is loaded with overlapping [0,1,2] sets in various permutations and it seems as if Zappa pre-empts the arrival of this 3-note configuration that is to play an important role at b. 127.



EXAMPLE 3.13. Concealed Fragments, bb. 98-100 (LSO).

The next example proves to be problematic in terms of defining its status, as we have already observed, fragments tend to be less prominent than themes. However, here, what starts as a prominent theme is recapitulated in the first instance by a difficult to detect isomelic variation,

and in the second, a concealed fragment. The first statement of it is at bb. 130-131 (ex. 3.14), performed by an intriguing blend of bass clarinet, English horn and piccolo, where the designated registral extremes create a constricting type of effect. It is supported by variable dyads which incidentally are the exact same ones derived from the opening 4 bars of "The Pleated Gazelle" from *200 Motels* (1971). In "The Pleated Gazelle", the dyads are played *staccato* by the piano, however in this incarnation they are performed by stroked marimba and flutter-tongued flute. The phrase exemplifies the prevalent technique of rhythmic diminution and augmentation expressing a rapid switch between acceleration and deceleration. In this instance of the phrase it is defined and we are in no doubt of its prominence, but when it is reinstated at bb. 159-160, it is subsumed among a cacophony of orchestration. This procedure pertains to the surreptitious placement of recycled material; re-instantiations of phrases or fragments that are indiscernible in the aural yet hold continuity within the written score.[9]



EXAMPLE 3.14. Concealed Isomelic Variation.

[9] Clarification must be made here in relation to the two versions of "Pedro's Dowry", in the *Orchestral Favorites* (1979), at bb. 159-160, the phrase is played once by piccolo and violin, and some type of gliding synth sound which is not in the score. In the *LSO*, bb. 159-160 are extended by an ostinato while the violin plays the phrase once and then embarks on a kind of free improvisation of fast note sequences.

One thing that is apparent in "PD" is the exchanging in time of themes and fragments, sometimes within the confinements of a few bars and at other times spread over many bars. As we observed, distribution is non-adjacent but rather fragmented in time, therefore, structural coherence in this context is employed by two means. Firstly, conspicuously with clear repetition and variation of musical themes and secondly, as veiled repetitive fragments. There are many examples of this throughout "PD", some of them we have already examined. The analysis of themes and fragments do not tell the whole story, and we can only go so far with this. However, the process does illuminate melodic features that are retained and varied throughout the piece.

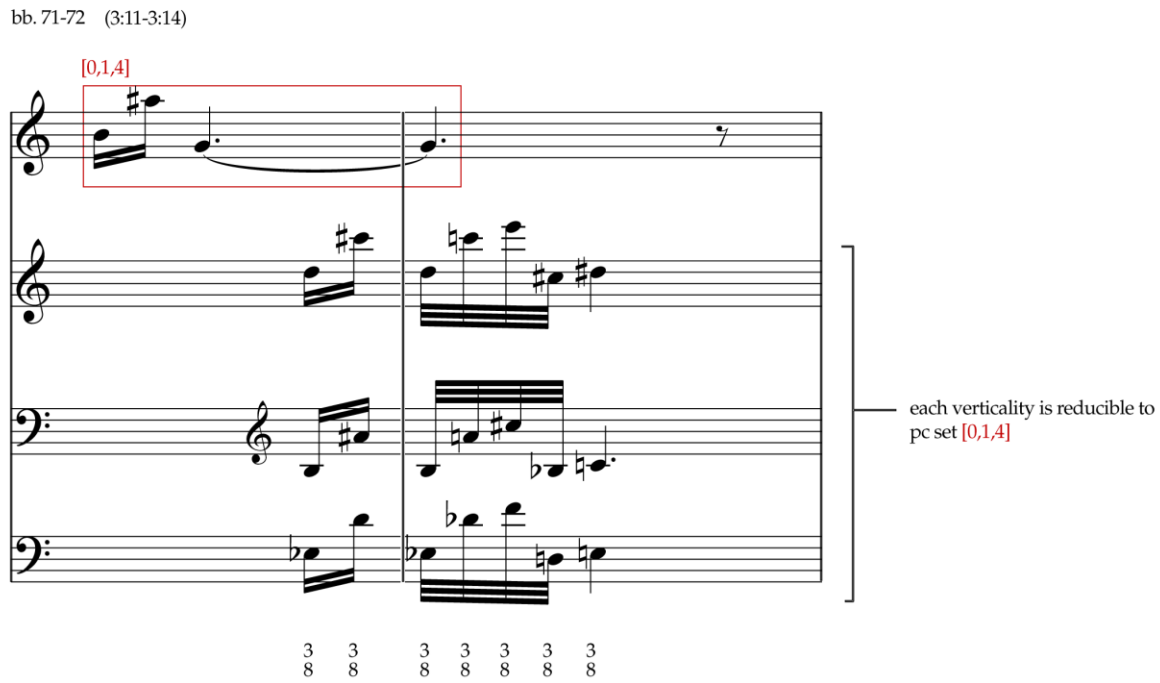
Chordal Analysis

"Pedro's Dowry" is rich with dissonant chords that are either static or propelled in rapid succession. Small cluster chords are used as texture and accompaniment and the larger chord densities can sometimes be made up of a simultaneity of ten different notes which are either compact or spread out by distances of up to four octaves. In some cases, interaction between simultaneous multiple melodic lines yields dissonant harmonies and because of the independency of each line, one does not dominate another. These lines are supported by irregular rhythms which create the effect of rapid movement of dense block harmony. In some cases, Zappa employed successive chords based on a predetermined intervallic calculation which proved to be a common technique in many of the composer's pieces (see chapter 7). In fact, Zappa explained the approach as a formulaic construct:

> Suppose . . . you want to build a section in a composition that has a certain number of mathematical fixed points . . . For instance, you say, "This section will contain [only] chords that are made of five notes; each chord must contain these intervals: a third, a half step, a fourth, and a major seventh." Then you set about randomly constructing. First you write a line; then you harmonize the line with five-note chords that adhere to that formula.[10]

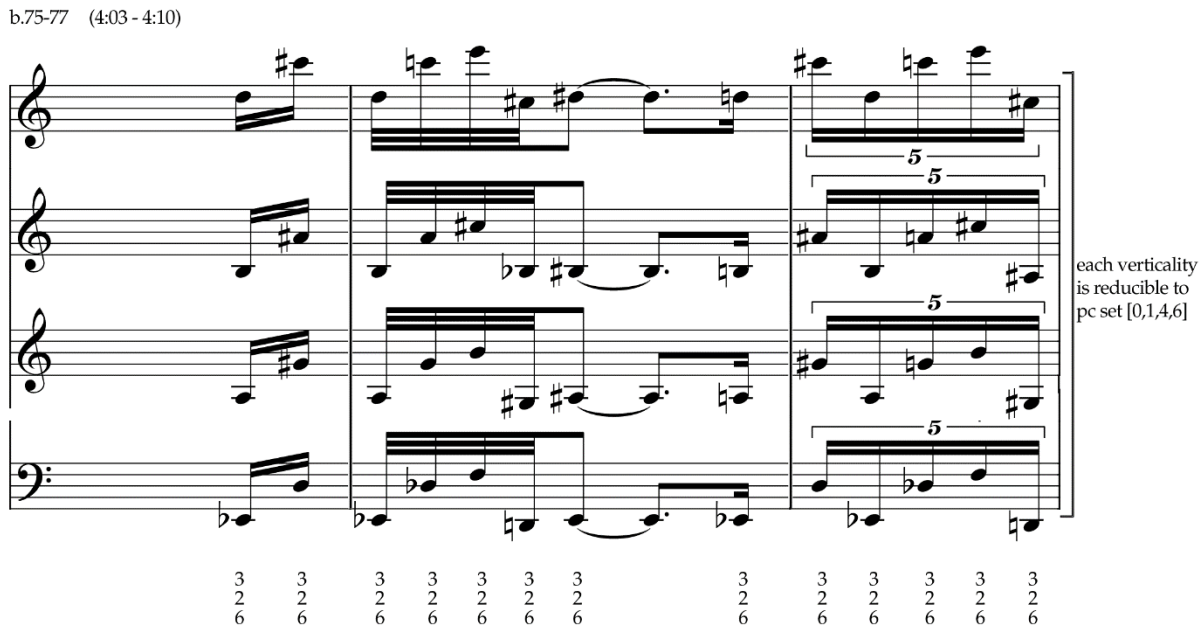
[10] Forte, D. 1979. 'Zappa', *Musician,* 19, pp. 34-43.

Interestingly, in the examples shown herein where this formula is implemented, not only do the chords adhere to this principle but each verticality is reducible to one of the most ubiquitous pitch class sets in "PD". In b. 71 (ex. 3.15), three melodic lines emerge, with each one maintaining the same linear intervallic succession but commencing on different notes. Viewing each subsequent note from the three melodic lines as a verticality, we can see Zappa's formula in place which in this example is D(8, 3). That is pitch interval (8) between the lowest and middle voice and (3) between the middle and upper voice, an intervallic structure that is retained throughout the phrase. In addition, the intervallic succession of the phrase brings about in its constituent parts, consecutive vertical realisations of pc set [0,1,4].



EXAMPLE 3.15. Successively Fixed Intervallic Chords, bb. 71-72 (OF).

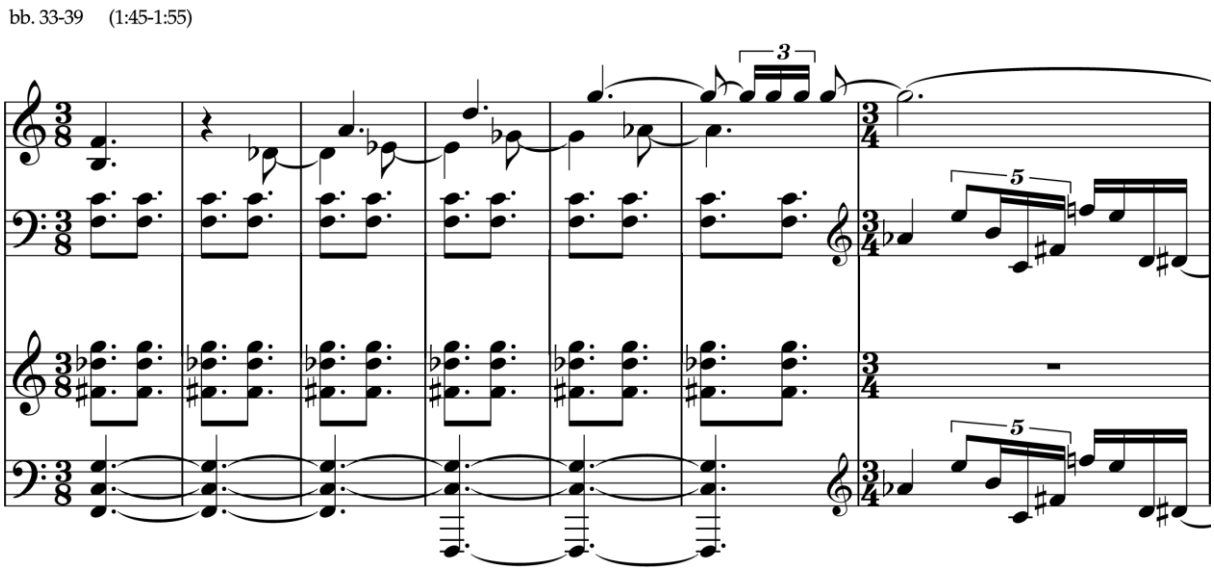
Vertical realisations of a pc set continues from bb. 75-77 (ex. 3.16) where pc set [0,1,4] is expanded to [0,1,4,6] while maintaining a consecutive interval structure of D(6, 2, 3).



EXAMPLE 3.16. Successively Fixed Intervallic Chords, bb. 75-77 (OF).

Bars 33-38 show the underlying harmony of stacked fifth intervals covering three octaves. The notes of the harmony from the bottom up are (F, C, G, F #, Db [C#], G), a density of (7, 7, E, 7, 6), this appears to relate to early experimentation with chords that would later appear as part of the *Chord Bible*. Based on an interview Zappa gave, he began to formulise groups of large chordal densities derived from note collections built on fifths containing seven different notes.[11] It is plausible that this concept might have been a compositional consideration for Zappa long before he decided to formulise the technique. As we see here in "PD", what subsequently became formulaic is in this instance evolutionary.

[11] Ibid.



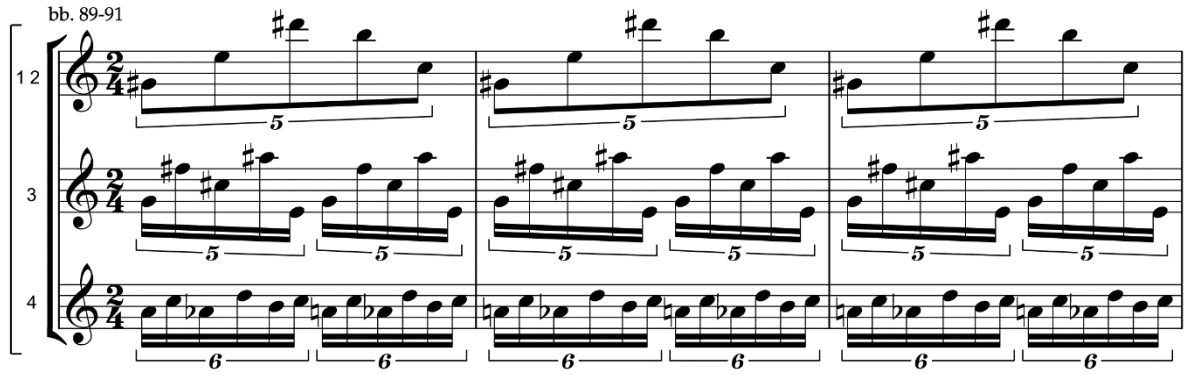
EXAMPLE 3.17. Stacked Fifth Intervals (Antecedent to *Chord Bible* Formula), bb. 33-39 (OF).

Rhythm

Zappa was interested in complex and irregular rhythms and this manifested in much of his work. The idea that rhythms could be speech influenced had an enormous effect on the way he constructed rhythmic units. A natural by-product of speech is that it can accelerate and decelerate with frequent alternation, and one way this emulation can be achieved in composition is by constructing complex and irregular rhythms.[12] For instance, on beat 1 of b. 50 there is a fragmented group of semi-quavers preceding a quaver note sextuplet, which

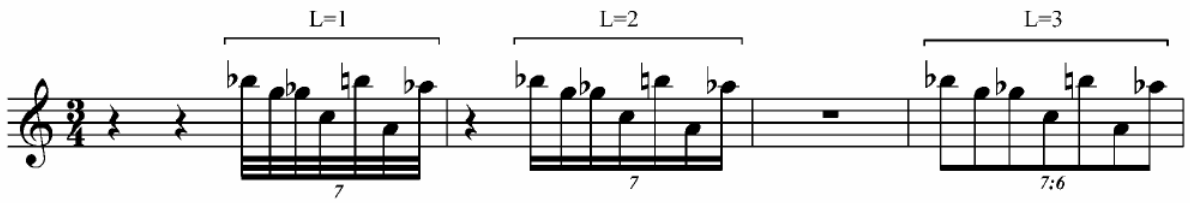
[12] Another possible influence for the use of irregular rhythms in composition was Zappa's interest in blues guitarists such as Guitar Slim and Johnny Guitar Watson: "The thing that I liked about the two solos I heard when I was 16 that really intrigued me – the solo on Three Hours Past Midnight and the solo on The Story Of My Life – was not just the tone of the instrument but the absolute maniac way that he spewed out these notes in a phrase with little or no regard to the rest of the meter or what was going on, but still being aware of where the beat was. He was just yellin' it at you...if you want to get beyond music into emotional content, you have to break through that and just talk on your instrument, just make it talk. And if you're gonna make it talk, you have to be aware that there's a different rhythmic attitude you have to adopt in order to do that...You just make it talk, and if you then go back and analyze those rhythms, you'll see that there's some really strange looking things on paper. You have to take the approach that what you're doing on your instrument is that without using your own mouth you are getting some kind of theoretical idea or an attitude that transcends the actual notes or harmony of the song. It goes beyond all that and gets right to some emotional point you want to get across. And that's what I appreciated about those early solos by Guitar Slim and Johnny Guitar Watson; there was no fucking around. They got right to the point". Milkowski, B. 1983. 'Frank Zappa: Guitar Player', *Downbeat*, 50(2), pp. 14-17, 46.
The influence is more direct in Zappa's guitar performances and recordings, but since there is a strong correlation between the guitar and orchestral music, it is possible to draw conclusions that speech influenced rhythms and the aforementioned recordings fulfil the same criteria. Evidence of this cross-over is in "Sad Jane" and "Sinister Footwear-Third Movement"; orchestral pieces derived from guitar solos.

causes acceleration and deceleration. This procedure is reversed in b. 51 where beat 2 has a quaver-note triplet, then beat 3, a semi-quaver sextuplet, thus deceleration and acceleration. The process continues until b. 56 with the semi-quaver quintuplet, an isomelic variation of the preceding quaver note quintuplet in b. 55. At times, irregular rhythms can be concurrent as in bb. 89-91 (ex. 3.18) where rhythms work counter to each other. The first and second flutes perform separate subdivisions of the same bar and are at odds with each other as they resist the main pulse at differential rates. This is compounded by the sextuplets creating additional rhythmic friction which is further emphasised by pitch content that projects a kind of momentary musical hypnosis.



EXAMPLE 3.18. Irregular Concurrent Rhythmic Layers, bb. 89-91.

Isomelism is another contributory factor to the manifestation of rhythm and is rampant in "Pedro's Dowry". Discussing *isomelism* and rhythmic dissonance in various extracts of Zappa's music, Clement (2009) brings our attention to bb. 59-62 (ex. 3.19) where we find rhythmic augmentation of a septuplet figure. *Isomelism* is evident where L=1 (1 crotchet length) is augmented to L=3 (3 crotchets length).



EXAMPLE 3.19. Clement. 2009. p. 290, ex. 3.29.

The exploitation of rhythm tends to have the effect of stretching or contracting the perceived tempo and independent evolving rhythmic structures permeate the entire piece. We cannot underestimate the importance of *isomelism* as a compositional device as it is one of the most ubiquitous occurrences in "Pedro's Dowry" as seen in the various themes and fragments.

Summary

Fragments and themes mostly consist of sequences that follow highly erratic contours which are deployed at various points throughout. This idiosyncratic distribution of themes and fragments is intriguing because it is concurrent with the concept of simultaneous events that exist as musical weights balanced at different locations. A concept that aligns with Zappa's interpretation of universal time where everything is happening all the time, and the compositional analogy of a Calder mobile. These concepts are discussed in greater detail in chapter 8, but are pertinent to the present musically interpretative discussion of which engenders this conceptual analogue. Furthermore, "PD" also fosters the discussion of music intended for the subconscious. This is pertinent to the re-emergence of previously stated musical material as veiled incarnations. While it is an interesting way to establish continuity, at times the re-emerging material is so embedded among dense harmony that it is difficult to notice that development is actually occurring. The inference is of a listening experience where

one might perceive continuity subconsciously. The idea that this could be one of the underlying compositional procedures for coherence and unification is most interesting.[13]

Resolution is often found at the end of a series of perturbations, it is usually in the form of a highly dissonant sustained chord that acts as a resting point counterbalanced against the intervening agitated musical events. The manipulation of tension in this way is intriguing because the moment of stasis is so removed from the preceding harmonic and rhythmic episode that whatever impending event occurs will appear even more dramatic. An example of this is at bb. 33-38 (ex. 3.17) where creative use of tension is introduced by means of note overlays in the form of dyads in the brass. The suspense builds, and when we arrive at b. 39 a short jagged interjectory melody is played that is reminiscent of the music of Eric Dolphy, made the more salient by flute and vibraphone combination, a particular feature of the *Out to Lunch* album from 1965. It is an excellent piece of orchestral writing because even though the melody is highly chromatic, it has the effect of resolution from the preceding suspenseful note overlay sequence.[14] However, any sense of resolution is quickly thwarted by the chordal swell that follows which then leads into the dramatic percussion and brass section. This kind of writing reveals the ability of the composer to somehow create elements of tension and release even whilst using highly chromatic material. This procedure of heightening tension by means of

[13] Bernard (1987) discusses a similar musical problem in Ligeti's music wherein the author cites the composer describing his approach to "Atmospheres" and "Lontano". Ligeti explains that the pieces have a "dense canonic structure", but the inherent polyphony is undetectable in the aural, instead one hears an "impenetrable texture". Bernard then goes on to pose the following questions: "How can we come to terms with this apparent discrepancy between what is written and what is heard? What is the point of composing strict canonic structures that cannot be perceived as such? And if we do not hear this 'micro- polyphony', as Ligeti terms it, then what do we hear?" Where "Ligeti seems susceptible to visual and tactile parallels to auditory phenomena to a degree that approaches synaesthetic sensitivity", Zappa is more inclined to form parallels with sound and the psychological and physiological effects.

[14] This particular passage sounds far more effective in the *Orchestral Favorites* version. One of the reasons for this is the 'upfront and close' mixing technique of the instruments, whereas the larger orchestra recording in the *LSO* version lacks the same clarity. This could be to do with different mixing techniques, re-orchestration or the balance disparities between different sections of the London Symphony Orchestra which was a factor Zappa had discussed (see Forte, 1983).

contrast and texture on already existing dissonance is an excellent example of Zappa's ability to employ the concept of 'measured tensions'.

As for programmatic considerations, it is difficult to know which came first, the narrative or music. Clement states that, "[m]any of Zappa's orchestral pieces have programs of some kind (most were performed as ballets). However, it is uncertain if the music is truly intended to depict these scenarios or if they were merely applied after the composition was completed".[15] The latter case seems probable as the narratives often seem bolt-on like, involving some kind of perverted courtship or sexual encounter. One case in support of this theory is "Sad Jane – Second Movement" which assumes a narrative after it had been constructed from a guitar solo played in 1968 and orchestrated for a 1983 performance. Another example is "The Girl in the Magnesium Dress", a composition constructed from "digital dust"[16]. Zappa described the conception of this piece from inessential digital data leftovers, yet in the liner notes of "The Perfect Stranger" (1984) "TGITMD" is accompanied with a short narrative about "a girl who hates men and kills them with her special dress".[17] Although this is not entirely conclusive as to the chronology of narrative and music, it does however seem plausible that narratives would follow the completion of a composition. Whether this happened for sure in the case of "Pedro's Dowry" is unknown.

Finally, the two versions of "Pedro's Dowry" differ in a number of ways, and although the *LSO* version may have a more polished aura about it, it seems congested, with the piece better suited to a smaller orchestral set up. Ultimately, the *OF* performance is far more interesting. This version offers more intrigue because of the unusual inclusion of non-orchestral instruments, in particular the clavinet (normally associated with funk and electric jazz music), electric bass, and a viola played through a wah-wah pedal (a sonic device pioneered by Jimi

[15] Clement, 2009, p. 228.
[16] Menn, D. 1992. 'Zappa!' *Guitar Player*.
[17] Zappa, Frank. The Perfect Stranger. 1984.

Hendrix). The *OF* recording ‘cuts through’ better with the placement of instruments within the mix up front and clearly articulated. Many of the unique characteristics captured in the original recording seem lost in the *LSO*. The dense structures are not conveyed as successfully, with some sections rendered indeterminate, perhaps as a result of unfeasible orchestration. Or it could merely be a case of an under-rehearsed orchestra attempting to ‘get through’ the piece without having the time to refine the parts. Either way, and as it stands, the *OF* version is a far more vibrant and exciting incarnation.

CHAPTER 4

The Perfect Stranger

In the analysis of "The Perfect Stranger", I shall illustrate how *Chord Bible* harmony is implemented using successions and alternations of fixed intervallic chords to support a melody.[1] We have already seen formative examples of this structural technique in "Pedro's Dowry", and so the analysis of it in "The Perfect Stranger" reveals some compositional consistency. When discussing *CB* structures I shall use chord and density interchangeably. Chord is used when describing general characteristics of its make up or behaviour within the music, and density is employed for specific *CB* derivatives. I will occasionally refer to densities as verticalities if I am comparing harmonic and melodic simultaneities. In the melody, horizontal will sometimes be used for the unfolding of a melody that relates or not to the harmony (vertical). Vertical is deemed to be an appropriate term to use because of the definitive nature in which the harmony follows the melody. Essentially, traditional forms of counterpoint were not considerations for Zappa, therefore the voice leading by-product of successive densities is a result of automation that is predesigned. It is the very densities that are individually inserted underneath the melodic line that infer a verticality.

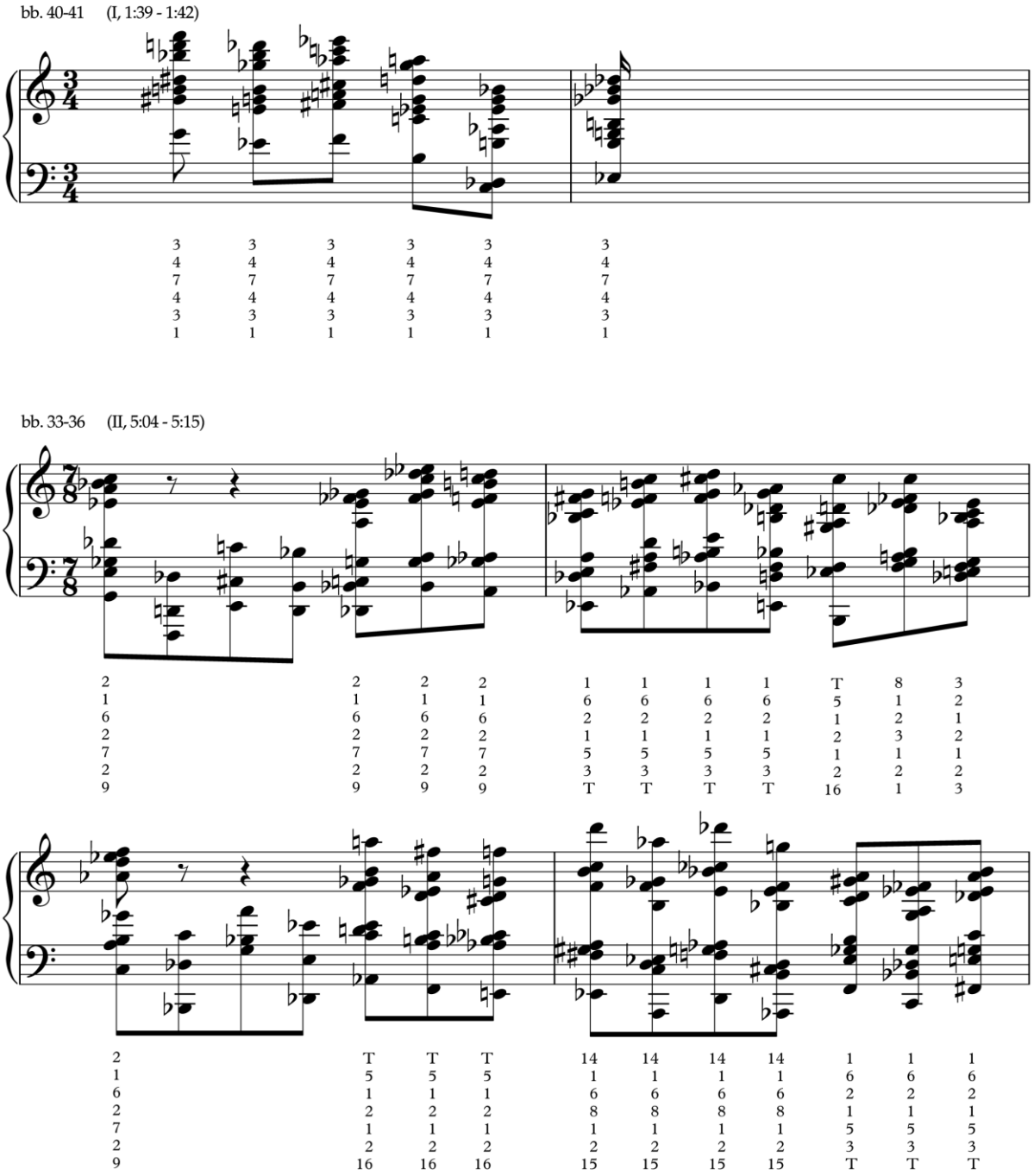
All the Minor Lydian and octatonic chords used in the piece are presented in tabular form, this statistical analysis allows for a clear representation of the different values placed on each chord. Essentially, the statistical hierarchy shows the different levels of usage between the chords, indicating whether some are passing or more pervasive. The tabulations also illustrate how certain chords are closely related. Some chords are simply intervallic inversions

[1] I have intermittently referenced Clement's partial analysis of the piece from his thesis *A Study of the Instrumental Music of Frank Zappa* (2009). I have attempted to build on what Clement has already discovered, and analyse other parts of the piece, so some of my analysis will reaffirm *Chord Bible* usage but I will also discuss other attributes consistent with Zappa's compositional process. Since Clement's analysis is primarily focussed on *Chord Bible* derivatives and harmonic and melodic parity, the first part of my analysis will centre on similar features and how they develop and interact with other sections of the piece that have not been analysed.

of each other, while others are modified using different methods. By way of simple operations, it is possible to create similar sounding chords that do not necessarily share the same intervallic structure. For example, by moving the lowest note of a chord up an octave, the intervallic structure is changed, as in the case of D(T, 4, 1, 3, 1, 2) which after the octave displacement becomes D(2, 2, 1, 3, 1, 2). Sometimes chords can follow the same procedure after which the chord is turned upside down, which happens with the octatonic, D(T, 3, 5, 1, 2, 6, 1) becoming D(1, 6, 2, 1, 5, 1, 2) after this operation. Similar methods of intervallic equivalency and variance within chords is also examined later in "Bob in Dacron" but with smaller cardinalities. Since there seems to be limited evidence of formulaic application of successive densities in any given passage of music, consecutive instances of one fixed density, alternations of two fixed densities, and partial inversions thereof are the only suggestions that some kind of formula is in place.

There are two interesting methods of *CB* theory employed by Zappa in "The Perfect Stranger", one of them is fixed interval chords which move in consecutive order, and the other is where two densities alternate back and forth. In (ex. 4.1) Movement One (hereafter (**I**)) bb. 40-41, D(1, 3, 4, 7, 4, 3], (the highest yielding Minor Lydian density of the piece) has fixed intervallic spacing as it follows part of the melodic line. The distance between each note in the chord is always the same and as a consequence the intervallic structure remains subordinate to the melodic line in the top voice. This hierarchy means that the melody is free to move about, but any voice below it in the harmony must consistently maintain its distance from the other notes, a distance that is predetermined by a specific choice of intervallic make up. In the same example from Movement Two (hereafter (**II**)) bb. 33-36 we can observe that the densities change from one fixed structure to another, 4 x D(9, 2, 7, 2, 6, 1, 2) followed by 4 x D(T, 3, 5, 1, 2, 6, 1) and so on. The densities at this juncture are larger than the ones found in (**I**) bb. 40-41 as they are octatonic which yield an eight-note structure with no repeated notes. Although

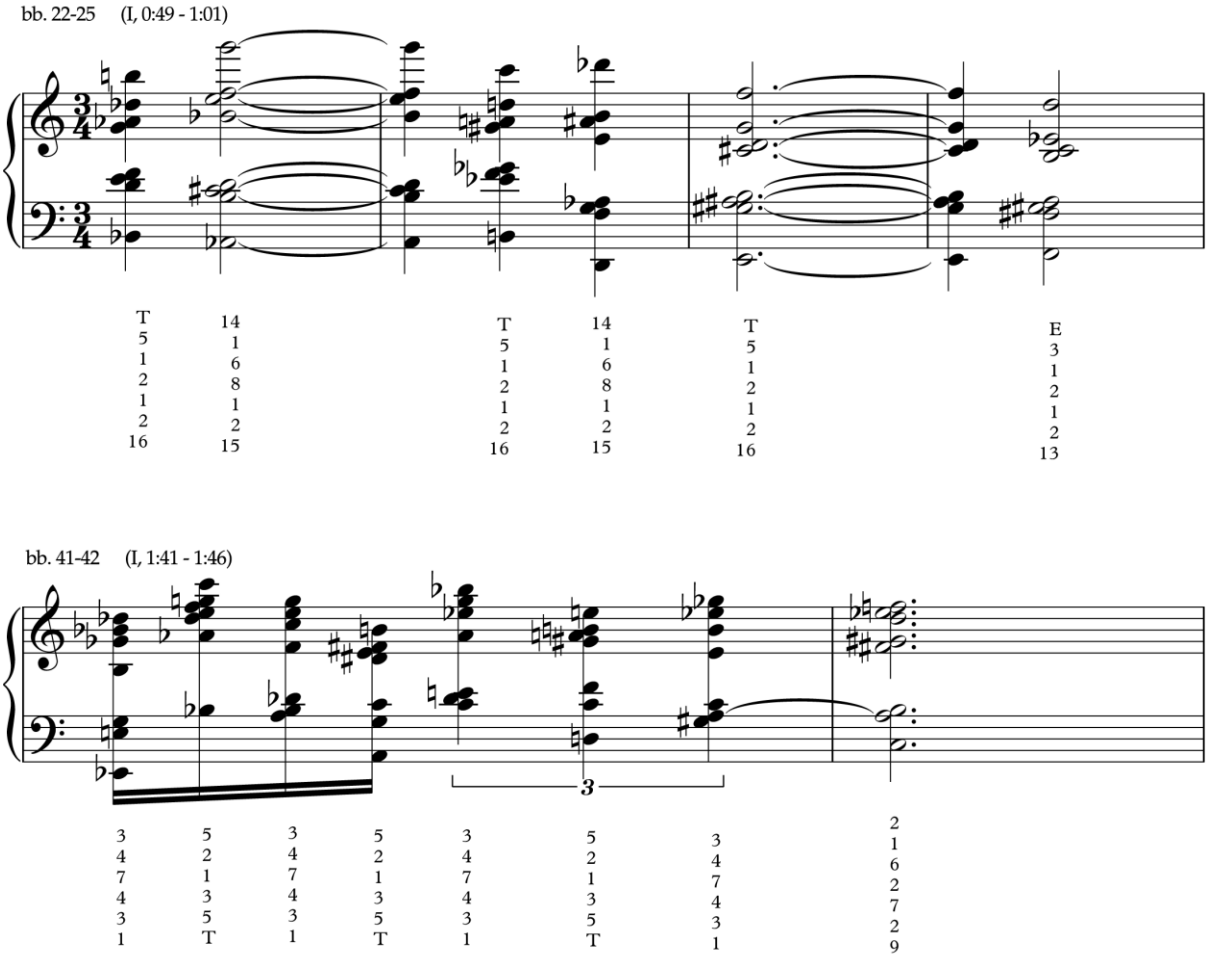
these bars exhibit dense structures, the sonic result is not so ‘compact’ sounding, firstly because of the plucked texture of *pizzicato* strings and secondly, the wide intervallic gaps between some of the densities, for example D(15, 2, 1, 8, 6, 1, 14] in (**II**) b. 36 is spread over almost 4 octaves.



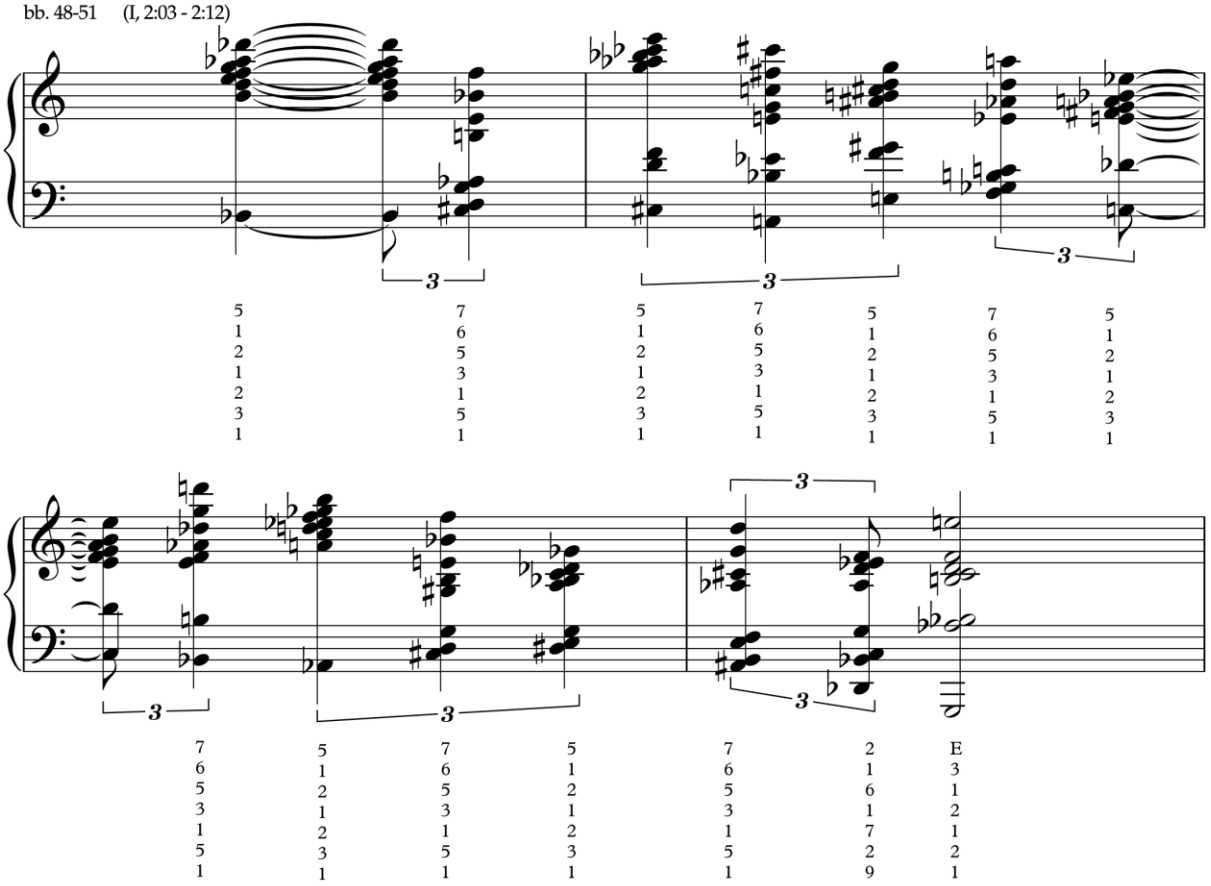
EXAMPLE 4.1. Consecutive Fixed Intervallic Densities.

The other method of *CB* implementation is the alternating between two distinct densities. In (ex. 4.2) there are six occurrences of this method, and in each instance the alternation is followed by a sustained chord. This form of oscillation implies a sort of ornamentation that proceeds to a momentary resolve, which is the sustained chord at the end of the alternation. It should be noted however, that the alternation is exclusive to the intervallic structure and not necessarily the harmony, for example in (**I**) bb. 22-24 in (ex. 4.2) D(16, 2, 1, 2, 1, 5, T) moves up by pitch interval (1) and then down by (7), while D(15, 2, 1, 8, 6, 1, 14) in (**I**) bb. 22-23 descends by (6). So, densities are transposed but retain the distance between inner voices. Occasionally, octave reduction requirements are needed in order to instil consistency when linking any slightly modified version of a similar density. For example, the first D(1, 3, 4, 7, 4, 3) in (**I**) b. 41 is a reduction because the distance between the lowest two voices is a minor 9^{th} which equates to 13 semitones, so what technically should read D(13, 3, 4, 7, 4, 3) has actually been reduced to D(1, 3, 4, 7, 4, 3). The reason is for consistent nomenclature and to simplify comparative means of identification. The purpose of octave reduction becomes even more useful when we encounter a situation like D(1, 3, 2, 1, 2, 1, 5) in (**I**) b. 50 where the (Ab) in the lowest voice and (A) natural above it creates a distance of 2 octaves and a semitone which is 25 semitones. It is therefore more expedient to illustrate the relationship between this density and the following instance of it as D(1, 3, 2, 1, 2, 1, 5) as opposed to D(25, 3, 2, 1, 2, 1, 5). Of course, there may be occasion when large distances between notes should be interpreted as a *CB* derivative and read as such without reduction. One reason for octave displacement in the lower voice where fixed interval densities are employed is again to do with the susceptibility of the inner voices to the melodic line. In (**I**) b. 41, the (Eb) seems to have been dropped an octave in order for that voice to follow the horizontal contour more closely with the other voices and ultimately the top voice. In some cases it would be fair to say that the composer made creative decisions where a *CB* density had been subject to octave displacement in one or more

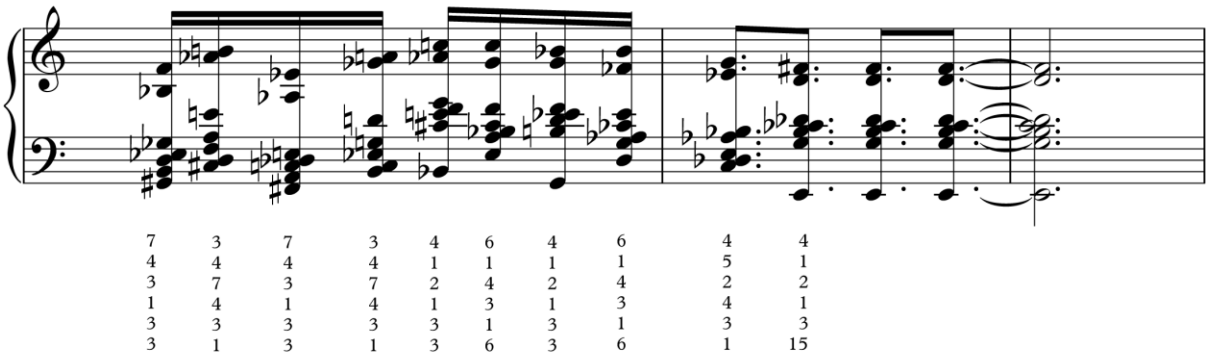
of the voices because it allowed for variation between similar densities, or a voice was lowered to provide lower register support for a specific chord.



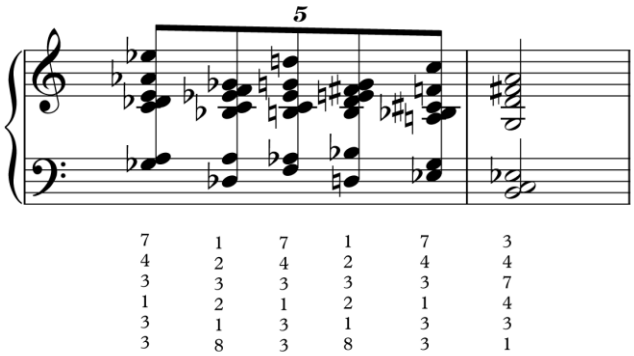
bb. 48-51 (I, 2:03 - 2:12)

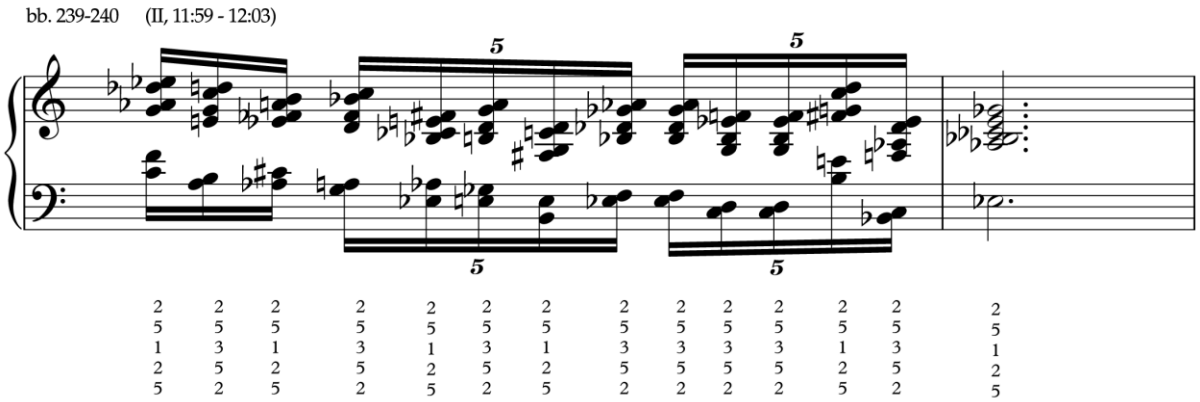


bb. 69-71 (I, 3:00 - 3:06)



bb. 219-220 (II, 11:06 - 11:11)

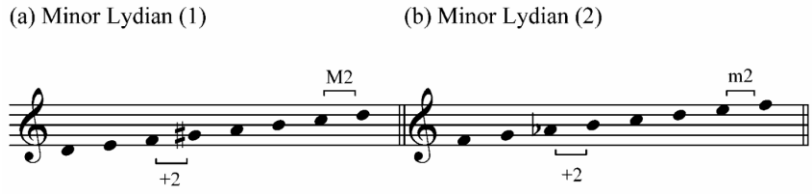




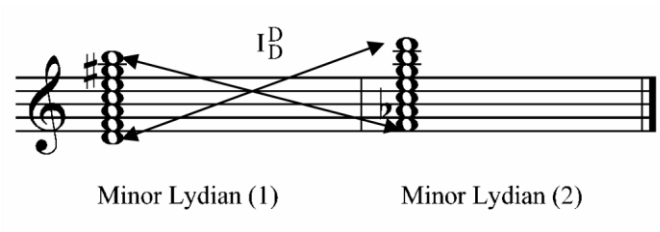
EXAMPLE 4.2. **Alternating Densities**.

The Minor Lydian Scale

In terms of scalar resources for these dense chords; an important scale for Zappa during the *CB* developmental period was the Minor Lydian, and Clement gives two examples of this scale which can often be heard in the pieces he studies. Minor Lydian (1) is categorised as a Dorian scale with a raised fourth and the Minor Lydian (2) as a Lydian with a lowered third (ex. 4.3). The ML (1) and (2) scales are intervallic inversions of one another, and in (ex. 4.4) we can see that the lowest note of D ML (1) maps onto the highest note of F ML (2). The implementation of Minor Lydian chords can either interchange between ML (1) and (2) scalar derivations or appear consecutively as ML (1) or ML (2) structures. The scales integrated as *CB* formulae function as harmonisations whereby they are successively transposed while following the main voice. The two Minor Lydian scales play a key role in "The Perfect Stranger", as they are consistently interchanged with the octatonic scale, the latter being a focal point of the piece which I shall address later in the analysis.



EXAMPLE 4.3. Clement 2009, The Minor Lydian Scales, p. 364.



EXAMPLE 4. 4. Clement 2009, Inversional relationship between Minor Lydian (1) and (2), p. 364.

A Tabulated Statistical Analysis of Minor Lydian Chords

The following tabulation represents the varying degrees of usage of all the ML *CB* densities which appear throughout the piece.[2] With its dominance confined to the first movement, the most ubiquitous density is the ML (2) derivative, D(1, 3, 4, 7, 4, 3) appearing 31 times in total. Its repeated appearance is not a mark of any significance in particular other than it is more "interjectory" than others, meaning we encounter a higher yield of it within a succession of densities following a melodic line.[3] Some densities are closely related in the form of intervallic inversions, for instance, ML (1) D(2, 1, 2, 2, 1, 3) and D(2, 2, 1, 3, 1, 2] share the same interval classes and so are inversions of each other. Also, Clement (2009) observed that by moving the

[2] I have omitted some ML densities, either because the density is made up of less than 7 notes or there are note repetitions. In the case of the latter, in (**II**) b. 158, there is a C ML density (5, 1, 6, 2, 7, 1), which because of its design contains a note repetition. Another example of note repetition is in (**I**) b. 30 with D(3, 1, 4, 7, 4, 3) where the lowest note is repeated. We must assume that in some cases there are copying errors in the score because it seems inconsistent in the deployment of *CB* harmony that bb. 28-31 containing 7-note chords with non-repeating notes would have one chord amongst them which doubles up a note.

[3] "Interjectory" refers to the way a given density is placed among others at seemingly randomised points within the music. The theoretical purpose of placing densities side by side is difficult to decipher, with artistic license being the necessary deduction.

lowest note up an octave within any given density, the structure changes and the intervallic make-up of the lower two notes are rearranged. This explains why some densities appear to be closely related. The observation facilitates a closer relationship between certain densities, for example D(T, 4, 1, 3, 1, 2) is a direct result of this process which after the octave alteration yields the aforementioned D(2, 2, 1, 3, 1, 2).

Minor Lydian Chords in "The Perfect Stranger"					
Minor Lydian (1) Densities					
D [8-1-2-3-2-1]	D [2-2-1-3-1-2]	D [T-4-1-3-1-2]	D [2-1-5-3-6-2]	D [2-1-2-2-1-3]	D [3-3-1-2-1-4]
(**I**) b. 30 (**II**) bb. 14, 53, 158 (x2), 219 (x2), 227 **x8**	(**I**) b. 30 (**II**) bb. 70, 136, 140 **x4**	(**II**) b. 79 **x1**	(**I**) b. 35 **x1**	(**I**) bb. 8, 28 (x2), 31, (**II**) bb. 46, 141, **x6**	(**I**) bb. 5, 28 (x2), 30, 33 (x2), 36 (x3), 69 (x2), 70, 74, 80 (**II**) bb. 15, 46, 143, 158, 159 (x2), 215, 221, **x22**
D [T-3-1-2-1-4]	D [3-7-8-1-2-5]	D [T-5-3-1-2-5]	D [6-1-3-4-1-6]	D [3-3-1-3-5-6]	D [8-1-6-1-2-7]
(**I**) b. 30, **x1**	(**I**) b. 76 **x1**	(**I**) bb. 9, 28, 29, 30, 31, 33, 34, 37, 38, 41 (x3), 80, (**II**) bb. 15, 132, 133 (x2), 134, 136, 139, 140, 141, 159, 167, 169, 219, 222 **x27**	(**I**) bb. 57, 69 (x2), 81, (**II**) bb. 15, 26, 45, 47, 134, 135, 136, 139, 140 (x2), 141, 158 (x2), 165, 213, 222 **x20**	(**II**) b. 141 **x1**	(**I**) b. 31 **x1**
D [3-3-1-3-4-7]	D [T-3-4-2-1-8]	D [14-4-1-9-7-E]	D [14-4-1-8-7-E]		
(**I**) bb. 28, 33, 34, 35, 54, 57, 69 (x2), (**II**) bb. 15, 134, 136, 140, 143, 160, 167, 217, 219 (x3), 221 **x20**	(**I**) bb. 9, 28, 38, 54, 73, (**II**) bb. 45, 79, 141, 143, 145, 146, 158, 159, 215, **x14**	(**II**) bb. 128, 159 (x2), **x3**	(**I**) bb. 72, 79, 85, (**II**) bb. 141, 142, 145, 151, 219 **x8**		

Minor Lydian (2) Densities					
D [2-1-6-2-7-1]	D [7-1-2-3-2-1]	D [E-3-1-3-1-2]	D [4-1-2-1-3-3]	D [1-3-4-7-4-3]	D [3-2-1-3-1-4]
(**I**) bb. 6, 15, 30 (x3), 35 (**II**) bb. 130, 136, 140, 141, 142, 215, 217, 221 **x14**	(**II**) bb. 136, 159 **x2**	(**I**) bb. 55, 80 (x2) (**II**) bb. 14, 79, 159, 217, 220, 221 **x9**	(**II**) bb. 167 **x1**	(**I**) bb. 27, 28, 30, 31 (x2), 33 (x5), 35, 36, 37, 40 (x5), 41 (x4), 54, 69 (x2), 80 (**II**) bb. 133, 135, 158, 169, 220 **x31**	(**II**) bb. 222 (x4), 223 (x2) **x6**
D [8-1-6-1-2-5]	D [8-5-3-3-3-5]	D [3-1-9-7-2-9]			
(**I**) bb. 29, 30 **x2**	(**I**) b. 85 **x1**	(**I**) b. 30, (**II**) bb. 79, 132, 133 (x2), 134, 136, 138, 141, 146, 159, 167, 169, 222 **x14**			

EXAMPLE 4.5. Minor Lydian chords in "The Perfect Stranger".

A Tabulated Statistical Analysis of Octatonic Chords

In the next tabulation I have illustrated all octatonic chords that appear in "The Perfect Stranger"[4]. It is clear that the emphasis is on eight-note densities with seven-note ones appearing less in comparison. In fact many of the seven-note densities are derivations of larger ones, for example D(3, 2, 1, 8, 6, 1), is derived from D(3, 2, 1, 8, 6, 1, 14) and D(1, 2, 1, 2, 1, 3) from D(1, 2, 1, 2, 1, 3, E), while others share the same interval classes. As in the ML densities, some of the octatonic ones are closely related, in that the lowest note might be transposed up an octave producing a slightly different density; D(1, 3, 2, 1, 2, 1, 5) and D(3, 2, 1, 2, 1, 2, 3) is an example of this manoeuvre. Another interesting feature follows the same

[4] Some anomalies occur in the octatonic densities, so although I state that all octatonic chords have been tabulated, there is of course the possibility that there may be one or two that exist but as a result of copying errors cannot be confirmed. For instance, in (**II**) b. 41, the last (Gb) in the second cello off sets the octatonic collections in the previous bars, however if it were a (G) natural then this would create an octatonic density. Consistency in the octatonic is disrupted for the sake of one note, so we should assume that it is a copying error.

process but the resulting density is flipped upside down, D(T, 3, 5, 1, 2, 6, 1) with the octave shift and flip becomes D(1, 6, 2, 1, 5, 1, 2) as does D(1, 5, 1, 2, 1, 5, 1) yielding D(1, 3, 2, 1, 2, 1, 5). This exemplifies that certain densities are not so far removed from each other in intervallic make up suggesting that Zappa only had to make minor adjustments to the voices to create variety.

One density of import is D(9, 2, 7, 2, 6, 1, 2), its significance illustrated by appearing as the highest yielding in the entire piece, occurring 39 times. It is not just the ubiquity of this density that makes it important, but its placement at various junctures throughout. It can be found at every statement of the main theme and in some cases can be held for several bars, it also closes the piece.[5] As a referential point of significance, D(9, 2, 7, 2, 6, 1, 2) is most certainly a good contender and further strengthens the claim of a more consistent approach to harmonic and melodic parity.[6] Occasionally we find simultaneous combinations of densities, the bars indicated in red within the tabulation denote this. At b. 61, D(9, 2, 7, 2, 6, 1, 2) and D(1, 2, 1, 2, 1, 3, E) appear concurrently, but although they are different densities they do in fact share the same octatonic collection and are derived from $OCT_{0,2}$. Similarly, D(1, 2, 1, 2, 1, 3, E) and D(3, 2, 1, 8, 6, 1) at (**II**) b. 1 converge, but again this does not present any parity problems as both densities are derived from $OCT_{1,2}$. Seven-note octatonic densities are not so prominent and generally fleeting in appearance, contrasting ML chords in rapid chordal passages. They do appear concurrently and as sustained chords at the end of a passage, but their function overall is restricted to more interjectory moments. Since the octatonic scale facilitates a high level of symmetry, it is inevitable that instances of this will occur, the following densities exhibit this inherent quality with palindromic effect, D(1, 5, 1, 2, 1, 5, 1), D(2, 4, 2, 1, 2, 4, 2), D(3, 2, 1, 2, 1, 2, 3), D(E, 3, 1, 2, 1, 3, E).

[5] Within the representative table layout, some densities cover more than one bar, D(9, 2, 7, 2, 6, 1, 2) at bb. 72-73 is sustained for two, but in the tabulation will only be counted as one instance, I mention this merely to clarify the statistical analysis.
[6] See Clement (2009, pp. 228-230)

Octatonic Chords of "The Perfect Stranger"

Eight-Note Octatonic Densities

D [1-5-1-2-1-5-1]	D [T-3-5-1-2-6-1]	D [2-1-2-6-7-T-1]	D [3-2-1-9-5-1-2]	D [1-6-2-1-5-1-2]	D [9-2-7-1-6-1-2]
(**II**) bb. 125, 126, 131, 216 **x4**	(**I**) bb. 65 (**II**) bb. 14, 34 (x4), 36 (x3), 47, 71, 126, 132, 138, 142, 163, 216, 243 **x18**	(**II**) b. 11 **x1**	(**I**) b. 39 **x1**	(**II**) b. 188 **x1**	(**I**) b. 50 **x1**
D [9-2-7-2-6-1-2]	D [2-4-2-1-2-4-2]	D [3-2-1-2-1-2-3]	D [2-1-3-3-2-6-3]	D [4-2-1-3-3-2-3]	D [2-4-2-3-4-2-4]
(**I**) bb. 7, 16, 18, 36, 42, 46, 48, 56, 61 (**II**) bb. 11, 16-25, 33 (x4), 35, 40, 42, 43 (x2), 72-73, 74 (x3), 75-76, 125, 126, 132 (x2), 137, 138, 139, 199-212, 216, 223, 246 (x3), 247-250 **x39**	(**I**) b. 21 (**II**) bb. 125, 138 **x3**	(**I**) b. 20 (**II**) bb. 15, 34, 131, 187 (x4), 189-191, 216 **x10**	(**II**) bb. 57, 127, 188, 231 **x4**	(**I**) b. 45 **x1**	(**II**) bb. 47, 137, 138, 177 **x4**
D [1-3-2-1-2-1-5]	D [1-5-1-3-5-1-5]	D [2-1-3-2-1-2-6]	D [1-5-1-3-5-6-7]	D [2-1-2-3-1-2-7]	D [5-1-3-2-3-6-7]
(**I**) bb. 43, 45, 48, 49 (x3), 50 (x2) (**II**) bb. 4, 14, 15, 37, 41, 43, 138, 163, 217 **x17**	(**II**) b. 172 **x1**	(**I**) bb. 18, 45 (**II**) bb. 43, 56, 127, 138, 230-231 **x7**	(**I**) bb. 48, 49 (x2), 50 (x2), 51, 63 (**II**) bb. 62-66, 82-85, 132, 162, 216, 235-239, 242 **x14**	(**I**) bb. 18, 36, 39, 45 (**II**) bb. 1, 37, 38-39, 41, 59-61, 81, 128, 131, 173-174, 175, 233-234 **x15**	(**I**) b. 43 **x1**
D [1-2-1-3-2-1-8]	D [2-1-2-1-3-2-9]	D [1-3-2-1-2-1-9]	D [16-2-1-2-1-5-T]	D [4-2-1-2-1-5-T]	D [E-3-1-2-1-3-E]
(**I**) bb. 20, 45, 47 (**II**) bb. 3, 14, 34, 81, 128, 171 **x9**	(**I**) b. 20 (**II**) bb. 131, 182-185, 215 **x4**	(**I**) b. 45 **x1**	(**I**) bb. 19, 22, 23, 24 (**II**) bb. 6, 11, 34, 35 (x3), 41 (x2), 127, 132, 137, 138 **x16**	(**II**) bb. 179-181 **x1**	(**II**) bb. 175 **x1**

D [1-2-1-2-1-3-E]	D [3-2-1-8-6-1-14]				
(**I**) bb. 19, 21, 25, 34, 39, 50, 61, 64, 81, 85 (**II**) bb. 1, 37, 43, 137, 177-178, 192, 216 **x17**	(**I**) bb. 19, 22, 23, 39, 48 (**II**) bb. 10, 36 (x4), 40, 48-52, 55, 128, 163, 195-198, 224, 229 **x18**				
Seven-Note Octatonic Densities					
D [3-2-1-8-6-1]	D [1-3-2-1-2-1]	D [2-1-2-1-3-2]	D [2-1-2-3-1-2]	D [E-7-2-6-1-2]	D [2-1-6-2-7-2]
(**II**) bb. 1, 192 **x2**	(**I**) b. 44 (**II**) bb. 158, 217 **x3**	(**II**) b. 140 **x1**	(**II**) bb. 9, 10 **x2**	(**II**) b. 12 **x1**	(**I**) b. 38 **x1**
D [1-2-1-2-1-3]	D [5-1-2-1-2-3]	D [9-6-2-1-2-3]	D [6-2-3-4-2-4]	D [3-2-1-2-1-5]	D [1-5-1-2-1-6]
(**I**) bb. 28, 38, (**II**) b. 197 **x3**	(**I**) b. 37 **x1**	(**I**) b. 15 (**II**) bb. 135, 140, 142 **x4**	(**I**) b. 37 (x2), **x2**	(**II**) b. 176 **x1**	(**I**) bb. 29, 73, 81 (**II**) bb. 46, 140 (x2), 148-149, 158, 220 **x9**
D [3-3-2-1-2-6]	D [6-1-3-3-2-6]	D [2-4-2-1-2-6]	D [E-3-4-2-1-8]	D [6-1-2-1-5-T]	
(**I**) b. 37 **x1**	(**I**) b. 29 **x1**	(**II**) bb. 185-186 **x1**	(**I**) b. 30 **x1**	(**I**) b. 37 **x1**	

EXAMPLE 4.6. Octatonic chords in "The Perfect Stranger".

Deciphering the logic behind successive *CB* densities is a considerable challenge for the analyst, especially during fast episodes where the chords support a melodic line. Initially, one might ask, does the succession provide any theoretical clues to its method of employment? What determines the choice for an octatonic or ML density in such a fast moving homorhythmic harmonisation? Is the octatonic density to be considered tenser than the ML? If so, are there any strategic points at which the chords are placed to cater for a process of tension

and release, as far as this can be achieved in a non-diatonic environment?[7] But, this does not seem to be the case, the octatonic and ML chords appear to follow no specific order except for one determined by the artistic whims of the composer. In addition, by 'intuitively' placing predetermined chords side by side, there were also operations of chance in the voice leading as a result of the procedure. In an extract from the *Zappa London Symphony Orchestra* programme notes, Zappa stated his use of "new harmonic techniques based on seven and eight note chords which generate their own counterpoint as an automatic result of the voice leading". This is illuminating because it explains the unconventional voice leading in some passages. It seems that by implementing formally constructed densities and applying them to a melodic line, as a result of a predetermined intervallic construction, successions of these densities will create their own unusual voice leading.

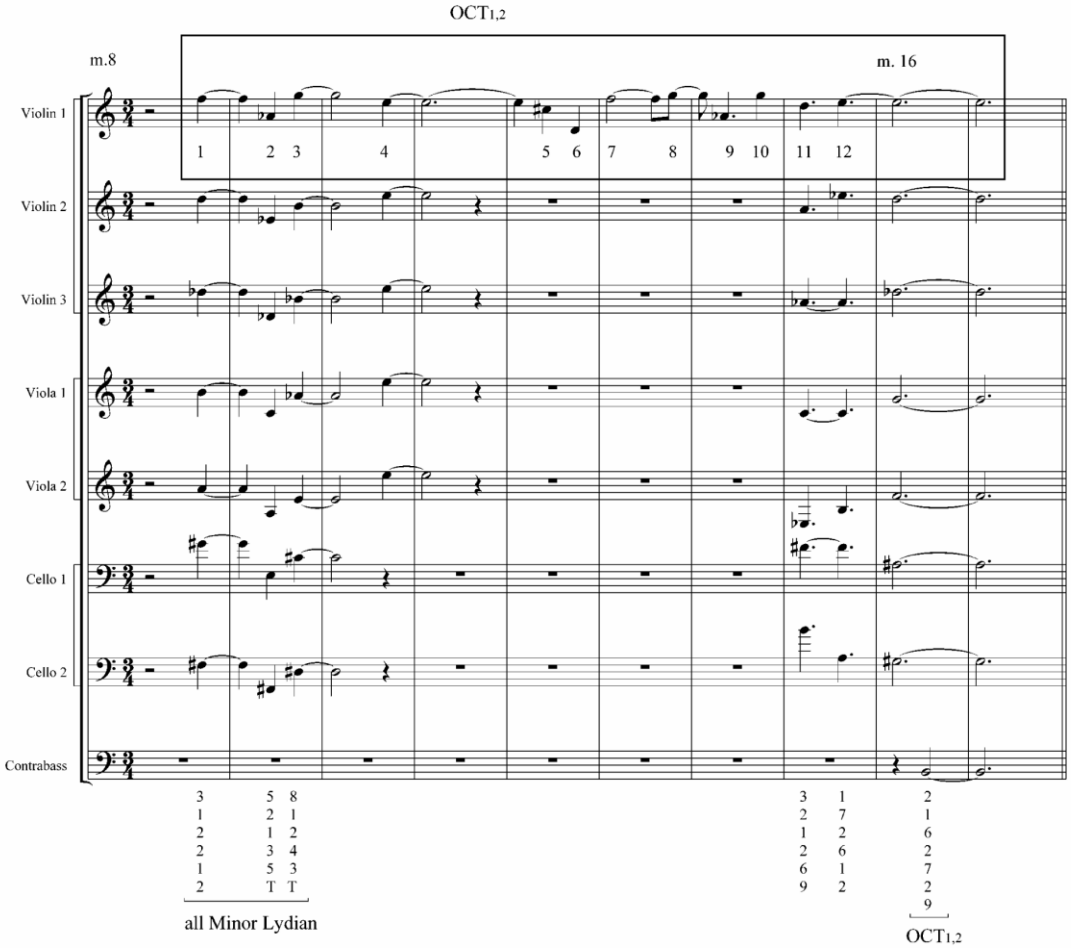
The Veer Towards Melodic and Harmonic Parity

Prior to the development of the *CB*, the relationship between chords and melody in the orchestral pieces tended to show less melodic and harmonic unification. We have observed examples of free chromatic melodies which bear limited correlation with the supporting harmony in the analysis of "Pedro's Dowry". The advent of the *CB* clearly provided Zappa with a strategy for a more formal integration of harmony and melody and it is in "The Perfect Stranger" where greater parity has been discovered. The first instance of this occurs in (**I**) b. 7 where D(9, 2, 7, 2, 6, 1, 2) in the strings supports a short introductory melodic fragment played by clarinet showing an immediate correlation from the outset. Both the vertical and horizontal structures at this point share the same octatonic collection. In the main theme of "The Perfect Stranger" introduced at b. 8; a devious sort of melody produced by violin *glissandi* outlines a

[7] There are diatonic chords in "The Perfect Stranger" but are generally used as interjectory passing chords. Where I refer to the non-diatonic environment is specifically the fast melodic passages which predominantly utilise ML and octatonic densities.

disjunctive intervallic succession of notes where the smooth and jagged coalesce. The theme is derived from $OCT_{1,2,}$ but we can see that in (ex. 4.7), the harmonic support of seven-note ML chords is not strictly related to the theme. This is an example of the dichotomy between melody and harmony of which we have just discussed. However, as it appears here, notwithstanding the independence of the horizontal and vertical, we can observe that parity is achieved at (**I**) b. 16 with D(9, 2, 7, 2, 6, 1, 2), a chord that acts as a cadence but also relates to the main theme by sharing pitch content from $OCT_{1,2}$.[8] When the theme reappears modified at (**I**) b. 43, again it proceeds towards the 'cadential' D(9, 2, 7, 2, 6, 1, 2) but this time en route, homorhythmic harmonistations occur in the theme's rhythmically adjusted quintuplet figure at b. 45. Although D(9, 2, 7, 2, 6, 1, 2) seems to act as a momentary cadence it also pivots much in the same way as it did in the first instance between the theme and the subsequent eight-note octatonic chords. This is a characteristic of "The Perfect Stranger", where fragmental and sectional repetitions occur, we shall see more of this as we progress through the analysis.

[8] In this context, the term cadence is used to express the momentary closure of a musical event that is the main theme and accompanying chord. "In…non-tonal music the principles of suspension, resolution, functional harmonic progression and even melodic formula may no longer apply and the sense of an ending is instead achieved through rhythm, dynamics and other variables such as instrumentation." Sadie, S. and Tyrrell, J. 1980. *The New Grove Dictionary of Music & Musicians*.

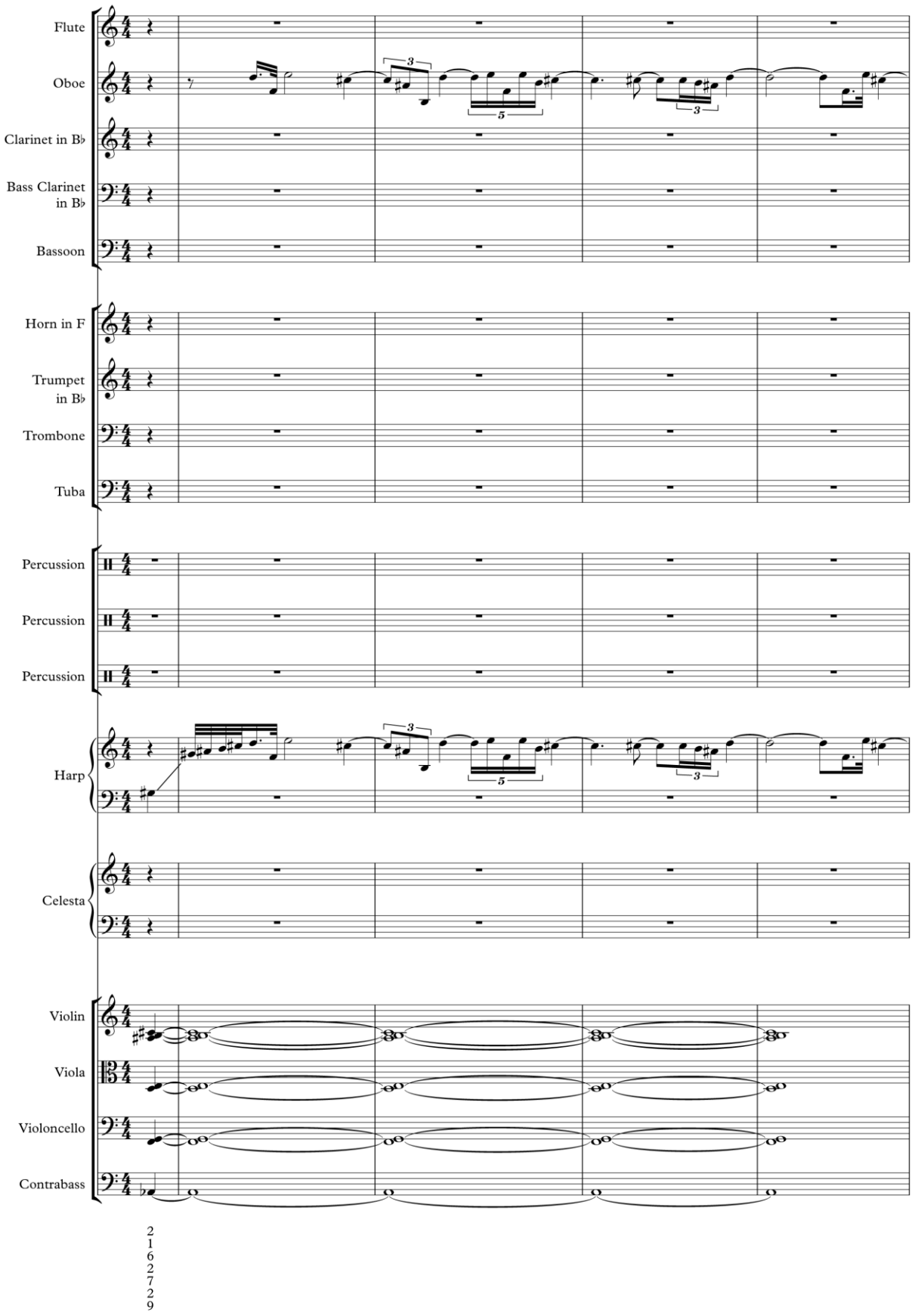


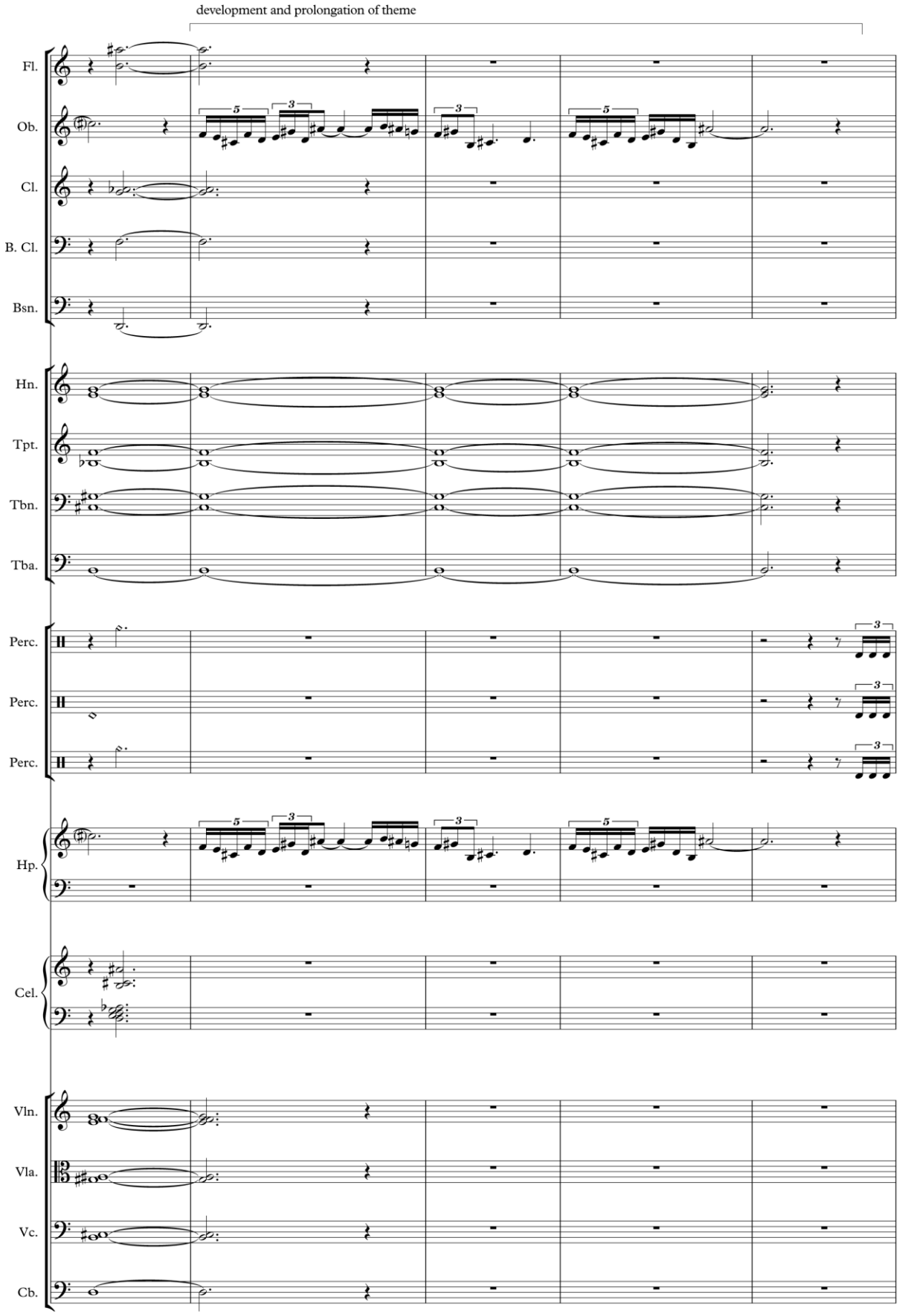
EXAMPLE 4.7. Clement 2009, "The Perfect Stranger I" bb. 8-17, p. 380.

The correlation between harmony and melody is even stronger in (**II**) bb. 16-25 (ex. 4.8) where D(9, 2, 7, 2, 6, 1, 2) is sustained throughout the theme. In addition, the theme is developed and prolonged which sets up this section for further development later on in the piece. Unlike the first occurrence in the opening bars where the chord is stated cadentially after the theme, now both vertical and horizontal structures share the same octatonic collection simultaneously. Harmonic and melodic correlation continues into the A ML (1) chord, D(6, 1, 3, 4, 1, 6) that immediately follows the theme supporting the melody in the trumpets and celeste which is made up of the A ML (1) scale. This can be viewed as an interjection initiating long-range coherence that is discovered later on in the piece when it reappears after the theme with

different orchestration. An interjection would seem an apt description purely for the fact that in the two previous iterations of the theme, it is directly followed by a sequence of octatonic chords. However, this time round, it is the interjectory A ML melody that is heard before the sequence of octatonic chords which are now *pizzicato*, illustrating another example of sectional repetition.

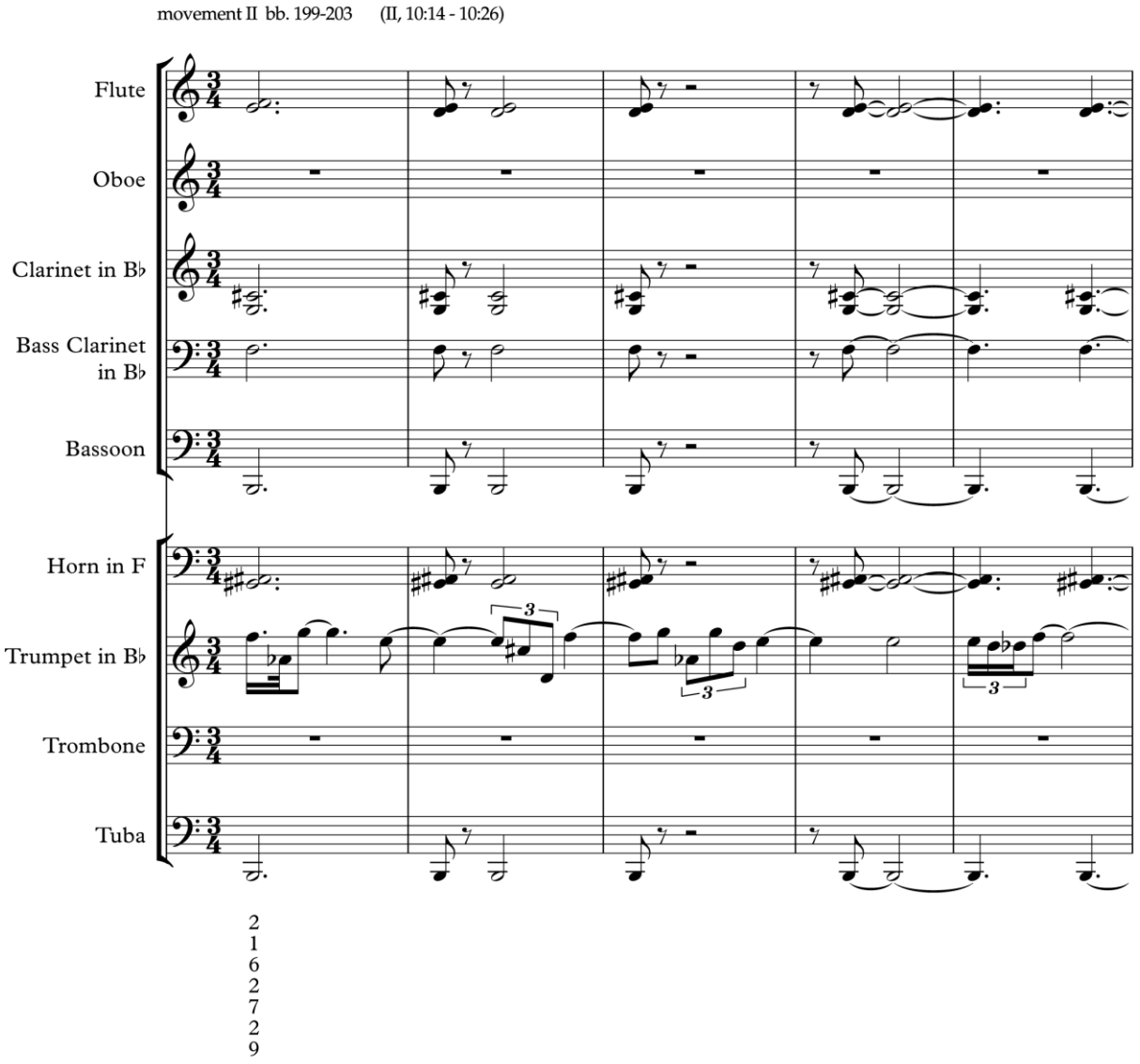
movement II bb. 16-25 (II, 4:19 - 4:45)





EXAMPLE 4.8. “The Perfect Stranger” Main Theme (II) bb. 16-25.

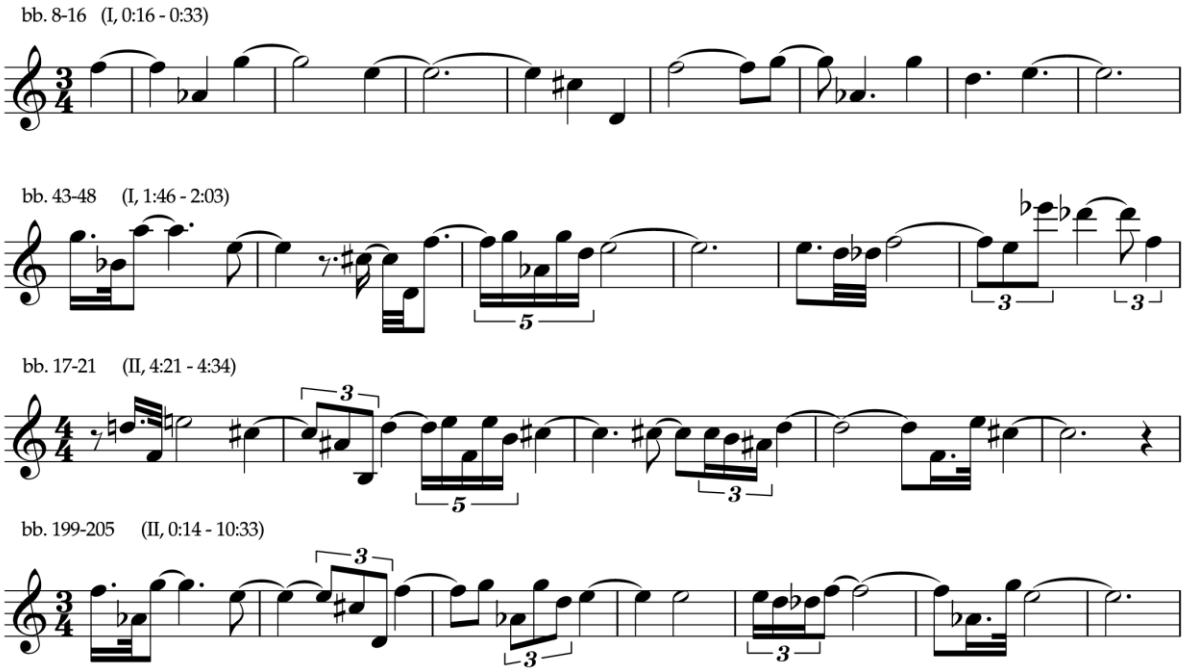
When the theme reappears for the final time at (**II**) b. 199, it is accompanied by D(9, 2, 7, 2, 6, 1, 2) replacing the sustained strings in the previous statement with a more abrupt sound played by woodwinds and brass. The theme is more pronounced with *fortissimo* trumpets, marimba, vibraphone and piano and is harsher in sound, signifying its final statement. As in the prior statement, the theme is followed by the ML chord but this time it is transposed to C ML, with part of the ML melody supported by seven-note ML and eight-note octatonic chords.



EXAMPLE 4.9. "The Perfect Stranger" Main Theme (II) bb. 199-203.

The Main Theme

The main theme is subject to various isomelic incarnations. In (ex. 4.10) there are the four statements of the theme which occur at various points in the piece. We can observe that each time the theme is stated it is modified. The principal instigation between bb. 8-16 undergoes a basic transformation between bb. 43-48 wherein the first 3 notes are now at T_2 before resuming the same sequence of notes found in bb. 8-16. This sequence of notes are now isomelic variations and at b. 47 the theme is developed with additional notes. The next appearance of the theme in (**II**) bb. 17-21 is another isomelic variation of the previous statement at T_7. And, the final statement (**II**) bb. 199-205, is a variation of the first and second instances of the theme.



EXAMPLE 4.10. "The Perfect Stranger" Variations on the Main Theme.

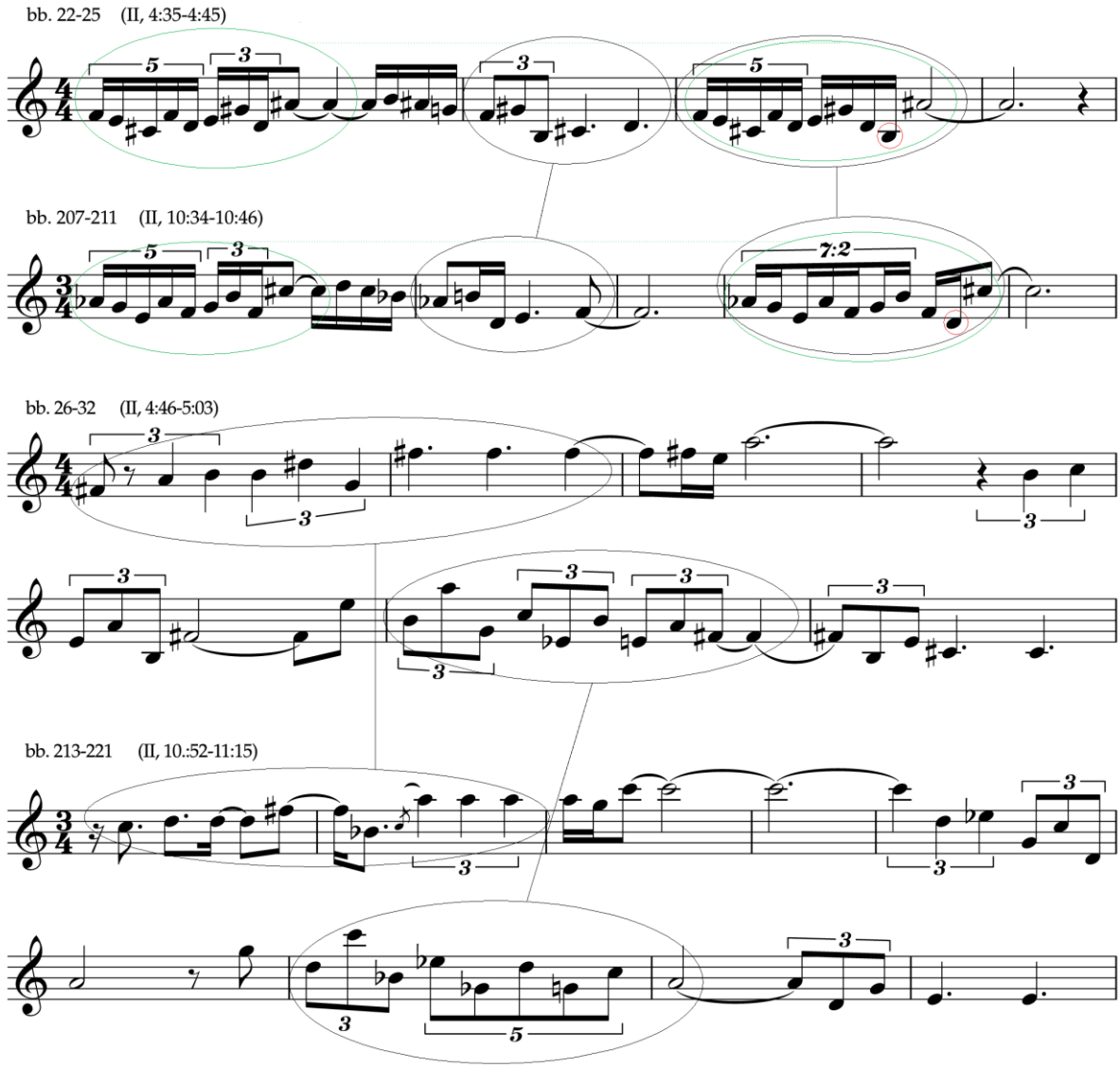
Isomelic Variation

Isomelism is a recurring compositional device in many of Zappa's pieces, orchestral and non-orchestral, and in the "The Perfect Stranger", it is not confined to the main theme. Our attention at this juncture is focused on isomelic variation and therefore for practical purposes falls under the umbrella of the *fragmental* and *sectional* labels. If we take (**II**) bb. 22-25, we discover that these bars are repeated and developed from (**II**) bb. 207-210, this also occurs between (**II**) bb. 26-32 and (**II**) bb. 213-221 (see ex. 4.11).[9] The repetitions are transposed at T_3 with only the isomelic variations outlined in the example. In the first two illustrations, the triplet figure at b. 23 has become two semiquaver notes and a quaver note at b. 208, and the quintuplet and semiquaver note figures are transformed into a septuplet, two semiquavers and quaver note. Even though alterations have occurred, the number of notes for each respective figure has not, and therefore each figure combined has retained the melody without disruption. The same outcome can be observed in b. 31 which contains three sets of triplets equating to 9 notes, and its adjusted recurrence at b. 219, now in the form of a triplet and quintuplet requiring the addition of one more note found in b. 220 which completes the 9-note figure. Essentially the sequence of notes are retained and depending on the rhythmic orientation may or may not require diminution or augmentation. However, there are times when retention of a repeated note sequence is not a consideration. For example, the first 9 notes in b. 22 are partially modified in b. 24, wherein the latter, an added (B) (highlighted in red) is inserted before the (A#) and the highlighted (D) in b. 210 interrupts the flow of the note sequence from b. 207.

Orchestration is another form of variation and from (**II**) bb. 22-25, the melody in the oboes and harp with harmonic support from the strings and brass, changes in (**II**) bb. 207-210 to trumpets, tuned percussion and piano with harmonic support from the woodwinds and brass.

[9] Although bb. 22-32 and bb. 207-221 are continuous events, I have divided them to closer illustrate in the example the isomelic variation.

The combination of trumpets, tuned percussion and piano creates a harsher sound than its previous counterpart, but while this is harsher, the subsequent event is softer and more mischievously expressed than its prior statement at b. 26. With its earlier fanfare-like treatment of the melody, its recurrence at (**II**) bb. 213-221 is initially more understated but is then disrupted by *CB* densities that slide about beneath it.



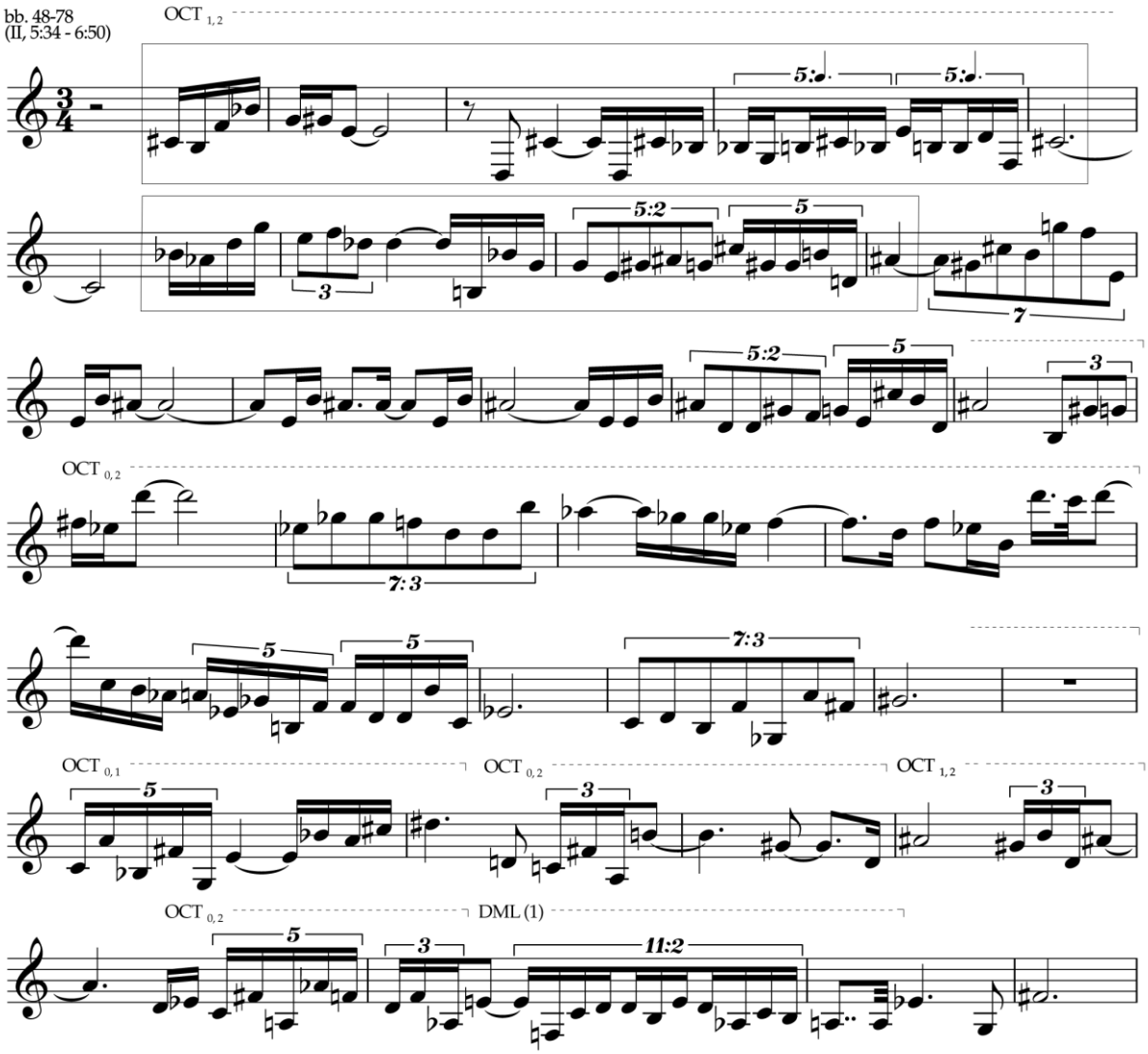
EXAMPLE 4.11. "The Perfect Stranger" Isomelic Variations.

Octatonicism

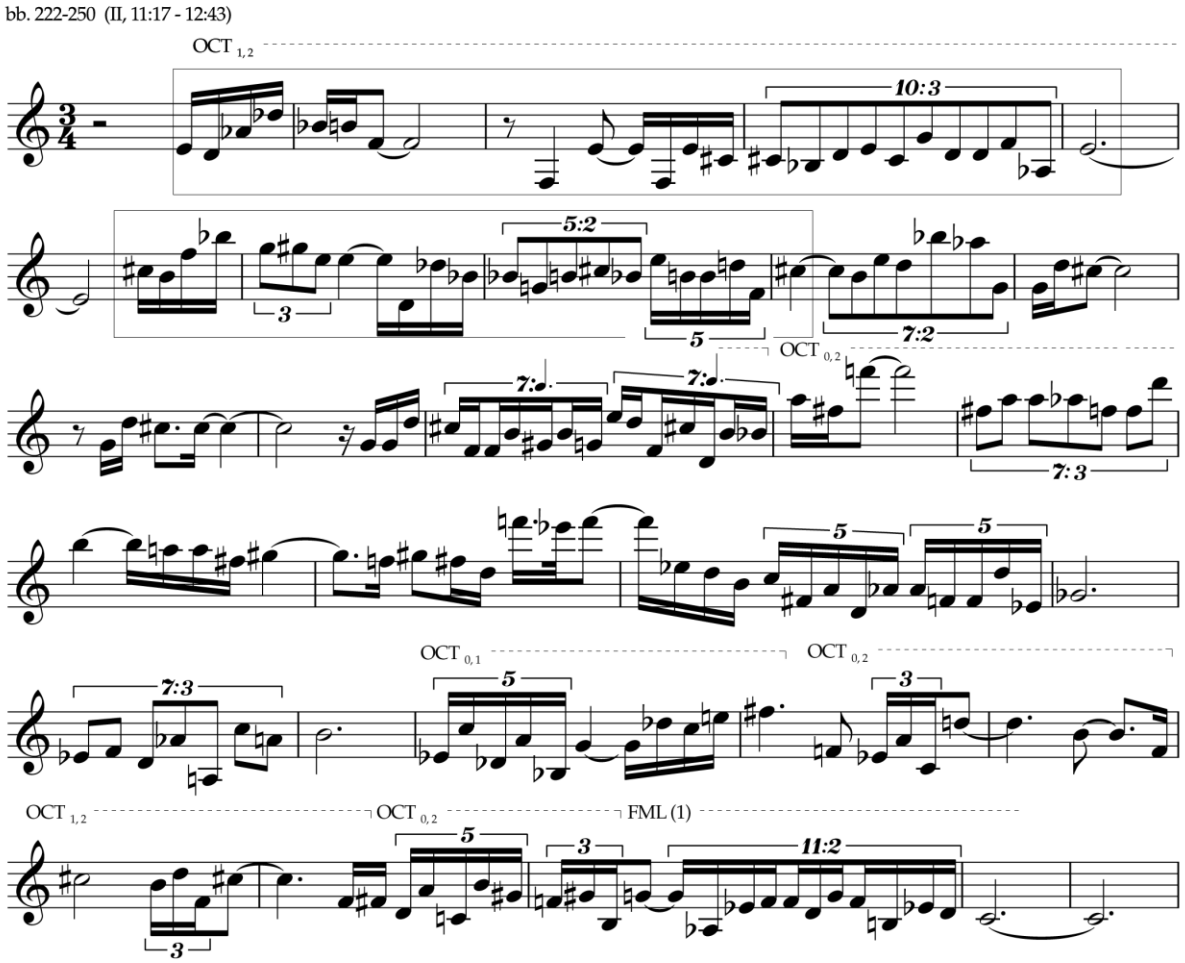
In example 4.12, the melody reveals an almost exclusive use of the octatonic. The scale is highlighted at specific points indicating where it changes to a different octatonic. As mentioned, "The Perfect Stranger" exhibits greater parity between the melodic and harmonic which is evident in our earlier observation of the main theme. Parity is also found in the harmonic support for the melody in example 4.12 (chords not shown) with common tones shared between the vertical and horizontal. However, while the melody at bb. 53-54, is derived from OCT $_{1,2,}$ the underlying harmony is a Db ML density which causes a clash between some of the notes. The (D) and (F) in the melody is in direct conflict with the Db ML chord underneath, the ML substitution for an octatonic disrupts the parity in theory, but within the overall context of the passage seems to function well in the aural. In addition, the D ML melodic fragment in bb. 76-77 disrupts melodic and harmonic correspondence as there is an octatonic chord supporting. Zappa cleverly capitalises on the (E, B and A#) at b. 58, the notes belong to the OCT $_{1,2,}$ and in this case, E Lydian simultaneously. The E Lydian chord is swiftly interjected for the bar and then reverts back to an octatonic.

Bars 48-52 are repeated from bb. 53-56 (see boxed in notes ex. 4.12a), where variation is transpositional and isomelic. As in (ex. 4.11), we find fragmental repetition wherein *isomelism* is simultaneously fragmental and sectional. Fragmental in that it represents repetition of a few bars, which in this case is also closely knit, between bb. 48-56, and sectional that the whole passage from bb. 48-78 is subject to repetition and variation from bb. 222-250 (see ex. 4.12b). From b. 56 onwards the melody appears to be more improvisatory, in fact, parts of it could exemplify Zappa orchestrating one of his guitar solos, as it is reminiscent of the type of phrasing and articulation one finds in his solos. This extended octatonic melody is important because it is repeated in its entirety before the closure of the piece from bb. 222-250, essentially a statement is made and deemed significant enough to close the piece. Incidentally, a similar

process occurs in “Pedro’s Dowry” whereby a melodic statement earlier on is recapitulated at the end.



EXAMPLE 4.12a. “The Perfect Stranger”, Octatonicism.



EXAMPLE 4.12b. "The Perfect Stranger", Octatonicism.

Texture

Zappa had a unique ability at balancing instrument textures by combining them in a non-conventional way. We have seen in "Pedro's Dowry" examples of this such as viola and trombone unison *glissandi* or the 'guitaristic' nuances applied to orchestral instruments in "Sinister Footwear". Orchestration can also be used to refer to some cultural convention, where the inference of which may reside in the subconscious of a person accustomed to the particular convention. This type of reference to "archetypal icons" was an important device for Zappa in conveying signs that could have extra musical meaning. Although the device tended to be more effective in the ECE pieces, for Zappa it seemed plausible enough that it would have its place

in the orchestral works too. For instance, (**II**) bb. 182-186 (9:47-9:54), is an interesting quotation of an orchestral timbre one might experience in the incidental music of some 1970s American detective series, it contains the musical ingredients that capture a scene of quiet drama or mischief. The cascade of notes where each one is designated a different instrument until all converge to form a dissonance which is sustained with the repeated single note interjections of the Harmon mute trumpet on top. It would almost seem out of place if it were not for the fact that retention of the octatonic collection prevails throughout these few bars.

If we now refer back to (ex. 4.12a) and consider the instrumentation from b. 48, in the recording, the breathiness of the bass clarinet and harshness of the marimba perform the melody creating a sort of textural dichotomy; the soft and airy collide with the harsh and brittle. It is reminiscent of the instrumentation used in "Theme from the 3rd Movement of Sinister Footwear" from the album *You Are What You Is* (1981); a guitar solo transcribed and arranged for bass clarinet and tuned percussion. In the "The Perfect Stranger", the combination of this timbre extends from bb. 48-61, before the trumpet enters along with intermittent flutes and oboes. The melody is projected with *fortissimo* and *forte* in the clarinets and marimba respectively and *pianissimo* in the strings with *forte* piano momentarily increasing the loudness at strategic points. More dynamic emphasis appears to be given to certain sections and Zappa is clearly relying on orchestration as a means to carry through this extended melody. The piano and harp briefly contrast the clarinets and marimba from bb. 55-61, accentuating the quintuplet figures before the melody becomes more dramatic at b. 63 with the introduction of *forte* open trumpets in the higher register. Bars 63-70 mark the penultimate end of the melody with a blend of high register woodwinds and *forte* trumpets and horns after which the melody transforms in the oboes, muted trumpet, celeste and vibraphone, the latter instrument now replaces the marimba from previous bars.

When this extended melody is repeated it starts at b. 222 with vibraphone and bells, consecutive fixed intervallic ML *CB* densities homorhythmically harmonise the first part of the melody. In comparison to bb. 50-51, bb. 224-225 are more prominently stated in the *fortissimo* horns and trombones. It is at this juncture where there is a sense of imminent closure and Zappa increases the tension and dynamics of the melody to simultaneously emphasise prolongation and bring the composition to an end. Before we reach the final bar, the trumpet from bb. 227-234, now exposed and leading the melody carries it to the flutes, clarinets, bells and vibraphone at b. 235 where the light and airy timbre proceeds to another instance of consecutive fixed intervallic chords harmonising the melody at b. 239. In bb. 71-78, oboes, muted trumpet, celeste and vibraphone state the melody providing a distinct texture that now at bb. 243-250 is in stark contrast with solo trumpet. The implementation of solo trumpet here as a focal point facilitates a greater dynamic in relation to the highly dense impenetrable final chord which as a result of the prior instrumentation sparseness in the front line renders it significantly more final and dramatic.

CHAPTER 5

Bob in Dacron

"Bob in Dacron" encompasses a variety of compositional procedures which evolved over an eight year period from 1971-1979. Because of this, it bears the hallmarks of each emerging style of orchestral writing Zappa committed to paper during that time. In part, it explains why "Bob in Dacron" is such an interesting piece of music, integrating developmental procedures Zappa experimented with over the years and essentially represents a piece of music caught in transition. As a consequence, the analysis will align itself with this fact and take into consideration the multifarious ways specific sections of the music can be interconnected and how parts may show different results for different purposes. For example, sections may be analysed twice in different contexts; a melodic line may be examined for intervallic manipulation in one instance and in another for its association with supporting harmony. One musical segment will be correlated with another in a local region but may also have some long range coherence with another at some other point in the composition. The distribution of melodic fragments and segments at seemingly random points within the music will be viewed correlatively side by side with illustrations highlighting the relationships. Presenting them in this way allows us to see recurring ideas implemented in unconventional ways and to build a stronger relationship between analytical observations across the orchestral pieces in general. I shall also discuss the idea of "drawing music" as there are certain aspects of the piece that suggest the conception of musical ideas committed to manuscript without the aid of an instrument.

In 1983 the London Symphony Orchestra under the baton of Kent Nagano rehearsed several works by Zappa which culminated in a performance at the Barbican Centre in London and the release of two albums thereafter. A selection of pieces were chosen for this event, some

were revised versions of previously performed ACE and ECE material such as “Pedro’s Dowry”, “Strictly Genteel”, “Envelopes” and “Bogus Pomp”, the latter essentially a collection of main themes from *200 Motels*. Premiered pieces were “Mo ‘n Herb’s Vacation”, “Sad Jane” and “Bob in Dacron”. Zappa subsequently released these recordings on his own record label Barking Pumpkin Records, the first album *London Symphony Orchestra Vol. I* in 1983 and the second, *London Symphony Orchestra Vol. II* in 1987. In these recordings, “Sad Jane” and “Bob in Dacron” appear on *LSO Vol. I* and *LSO Vol. II* respectively and are divided into movements, however in the scores both pieces are merged together with no indication of movements.

The vinyl editions of both recordings were later combined onto one CD which was released in 1995 by Rykodisc, titled *London Symphony Orchestra Vol. I & II*. There is a discrepancy in the way “Bob in Dacron” is listed on both the vinyl and CD releases. To clarify the presentational differences; on the original vinyl, “Bob in Dacron” is one entire piece with a running time of (12:12), and on the CD version it is divided into first and second movements, each with a running time of (5:36) and (6:34). In the analytical examples of the piece, along with the bar numbers, I shall present the CD playing times of each movement with a preceding denotation of either (**I**) or (**II**) to signify the movements as in (**I**, 0:00-0:10) or (**II**, 0:00-0:10). In terms of the written music, I have consulted both the 1979 full score and 1984 revised piano reduction *Munchkin* editions of “Bob in Dacron and Sad Jane” and some disparity is evident between the scores and music. The music written from bb. 170-209 in the 1979 full score edition does not appear in the *LSO* recording, and in the 1984 piano reduction score, those bars are completely omitted. Consequently, the 1984 edition is aligned with the recording and so b. 170 here corresponds until we get to b. 188 where 6 bars in both scores are omitted from the recording. Alignment between scores and music is therefore re-established at b. 194 in the (1984) and b. 234 in the (1979) scores. The reason for these omissions in the music is unknown,

however it is likely that there was an issue or some dissatisfaction with the performance at that point.[1] For this analysis, I have consulted the 1979 full score *Munchkin Edition*.

Drawing Music

Zappa used different resources for orchestral composition where ideas could be generated from the piano, guitar or by writing straight to manuscript with some pieces conceived using all methods. However many compositions retain the hallmark of music devised purely from manuscript sketches. Moreover, sketches that were developed over many years and pulled from various incarnations to complete a composition, as is the case with "Bob in Dacron" (hereafter "BID").[2] Since the findings in this analysis strongly suggest that "BID" was constructed in this way, it is highly likely that certain sections had been written straight to manuscript without the aid of an instrument. In fact Zappa explained the process, "I can just sit in an airport and write it down on paper, too. Some of the pieces to be performed by the London Symphony were written in airports or hotel rooms, with no appliances whatsoever."[3] I shall highlight points that strongly suggest this in my analysis. But first, we should consider another factor that supports this contention and that is Zappa's interest in the aesthetic appeal of the written score. In some cases, the graphic representation might even take precedent over the resultant sound; that is at least in its initial stage of conception. Zappa had discussed his early years and interest in drawing dots on paper and how intrigued he was by its appearance:

> I started writing music because I liked the way it looked and I had art talent when I was a kid, so I used to draw music. I figured that's what everybody else did, you know, just draw it till you liked the way it looked and then handed it to a musician.[4]

[1] It is possible that the reason for the discrepancies between score and recording is related to performance issues. It is probable that Zappa edited out sections that were not performed to his specification. David Ocker explained how all the LSO recordings were transferred to hard disk for editing purposes; "Frank kept editing and editing those tapes hoping to make them better. He had the recordings transferred to hard disk and was tinkering with them on computer… I doubt that any amount of editing could fix some of the problems with the performances". alt.fan.frank-zappa. 1994-95. *The David Ocker Internet Interview*.
Available at: members.shaw.ca/mitb/ocker/#orch (Accessed: 17 Feb 2015).
[2] According to the programme notes for the LSO 1983 performance at The Barbican, London, the composer states that work on "Bob in Dacron" began in 1971 and that for eight years after was subject to several modifications.
[3] Mulhern, T. 1983. 'I'm Different Or Not Exactly Duane Allman', *Guitar Player*, 17(2), pp. 23-29, 31-35.
[4] Zollo, P. 1987. 'The SongTalk Interview', *SongTalk*, 4(1), pp. 35-38.

The drawing of music and its visual appeal continued throughout Zappa's career as a composer.[5] Of course his understanding of it later on would have been more sophisticated and informed but it is interesting to note that the 'way it looks on paper' seems to have been integrated into the compositional process. What remains difficult to assess is how much of what the composer wrote straight to paper was speculative or assured. Trying to understand the level of awareness of how the music would sound as it was committed to manuscript is challenging because of the contradictory nature of the following quotations; Zappa is simultaneously describing the ability and inability to hear.

> I used to love putting little black dots on music paper. I'd sit for sixteen hours at a time, hunched over in a chair with a bottle of India ink, and draw beams and dots… I thought it was fun, because I could hear everything in my head, and I kept telling myself how thoroughly bitchen it was.[6]

> Well, first of all, once I've written it, it doesn't belong to me anymore. It's as strange to me as it is to the person that I hand the music to because as soon as I do it, I forget about it. Then I have to learn my part just like they have to learn theirs. Everybody has to start from scratch. The only advantage I have is I know how it works, but as far as what the notes are, I look at my part on a piece of paper and I see that my hand has to go here and I have to do this and I have to do that. It's weird. I don't think of notes when I'm playing at all. I'm absolutely tone deaf. If George [Duke] starts playing in some key, I can't tell what key he's in. And the only way I can find out what key he's in when he's improvising is by sneaking around on the guitar and hitting a couple of notes to find out what he's doing. Other people in the band have perfect pitch and they just hear it right away and say 'that's an A' and just start playing. But I can't do that.[7]

Clearly Zappa is discussing two separate activities of which, one is sitting at a desk writing music and the other rehearsing with a group. But how is Zappa hearing the music while writing it? Of course we cannot be absolutely sure, but if one does not have perfect pitch it would be difficult to hear the actual notes while writing the score and would therefore necessitate a physical realisation of the notes to be able to make an assessment. This should not necessarily be construed as a negative attribute, but merely as a way to better understand the compositional process by evaluating all the factors available. To some extent, this might also explain why Zappa emphasised intervallic structure among the chords and melodies as opposed to melodic

[5] I have contextualised the word "drawing" to mean a specific compositional procedure employed by Zappa; that is music which is conceived in the written form without the aid of an instrument.
[6] Zappa and Occhiogrosso (1989, p. 142).
[7] Weitzman, S. 1975. 'What's A Mother To Do?' *Zoo World*, No. 75, pp. 12-15.

development, at least when writing music away from an instrument. Moreover, the lack of perfect pitch clearly had limited effect on the abundance of creativity Zappa had. Perhaps what Zappa is referring to as "I could hear everything in my head" is the concept, idea or shape of the music, but not the specific pitches until of course they were played on the piano, guitar or by an orchestra. Zappa refers to the possibility that the concept, shape or form could well be the nucleus and subsequent development of ideas when describing how he retained information, "I have a photographic memory that stores information in three dimensions including quadrophonic sound... I can store a whole concept of something just like it was a block of steel as big as this building and all the details that are on it". We should consider too that over the course of many years and the opportunities Zappa had to hear his music, the more assured he would be for the next composition. This would be of prime concern for the composer and thus why he placed so much importance on getting his orchestral music recorded: "I'm interested in getting it recorded so that I can hear it. It's never enough just to hear it played once live in a hall. You may be able to listen to the stuff carefully so that you can go further and advance your craftsmanship, but it's just a little bit hard to do that by hearing it only once, so I do want to get it recorded."[8] Once hearing what he wrote he could make creative and practical decisions and over a period of time develop a better understanding of what his ideas might sound like while committing them to paper. In discussing the resultant sound of drawn music we should point out that most of the time Zappa had clear ideas and expectations of how his music would sound even before its performance by a group. Ed Mann clarifies this in the following quotation:

> Certain pieces such as the mainstays we all know well were voiced out on the piano first, and FZ knew exactly what they sounded like before bringing them to the band or ensemble. He would spend hours at the piano and guitar experimenting with voicings… At other times, for example much of the LSO recordings 1983, I am certain that he relied only on theory and speculative experimentation without hearing the results first.[9]

[8] Mulhern, T. (1983).
[9] Ed Mann, e-mail message to author, March 3, 2015.

If we consider a speculative approach to composition we may ask further questions as to why this approach is used at all. Two factors play a part in this; firstly, Zappa had limited ability as a pianist and so inspiration did not evolve from an assured technique. Secondly, even if Zappa did play the piano, the rapid succession of large chords he liked to write would probably require more than one capable pianist to play.

> It's more like, how did it turn out. Does it work? And if it works you don't even have to know why it works. It either works or it doesn't work. It's like drawing a picture…I don't know how to explain it. I just do it. It's not based on any academic regulations. If you take a blank piece of paper and a pencil and just start sketching on there, it doesn't necessarily have to be a house and a tree and a cow. It could be just some kind of a scribble, but sometimes those scribbles work and they are the right thing for that blank piece of space, and you can enjoy them. Or you can say, "That's not a house, that's not a cow, that's not a tree, and so I don't like it; it's just a scribble." It depends on what your viewpoint is.[10]

The idea of it "either works or it doesn't" is quite illuminating and encapsulates the idea that some music was written speculatively. This appears to be the case in "BID", where musical parts are too ill-fitted to have been conceived on an instrument, suggesting music composed in the written form.[11] Single melodic and contrapuntal lines do not evolve in a manner suggestive of ideas devised from an instrument. This could also be attributable to Zappa's *CB* and the composer's claim that chordal structures moving in sequence will create an element of contrapuntal automation.[12] Interestingly, what seems to appear as "speculative experimentation" on paper has the potential to somehow function in the aural.

Zappa describes the piece as being made of seven voices alternating with the various sections of the orchestra, "in a contrapuntal setting that purposely crosses all the voices in a way that generates seven independent ugly melody lines which, when heard simultaneously, blend together into a moving pattern of relatively disquieting harmonic aggregates".[13] It is this description that proves to be important in understanding the piece and how it works. However,

[10] Lyons, S. and Friedman, B. 1987. 'Frank's Wild Years', *Option*, No. L[2], pp. 28-31.
[11] Although describing Zappa's music in a slightly different context, Bernard suggests that, "the vast majority of Zappa's pieces have all the earmarks of creations whose primary form is written." Bernard, WJ. 2000. 'Listening to Zappa', *Contemporary Music Review*, 18(4), pp. 63-103.
[12] In the *LSO* Programme notes Zappa briefly discusses a harmonic technique based on large chords, "which generate their own counterpoint as an automatic result of the voice leading" (1983).
[13] LSO Programme Notes (1983).

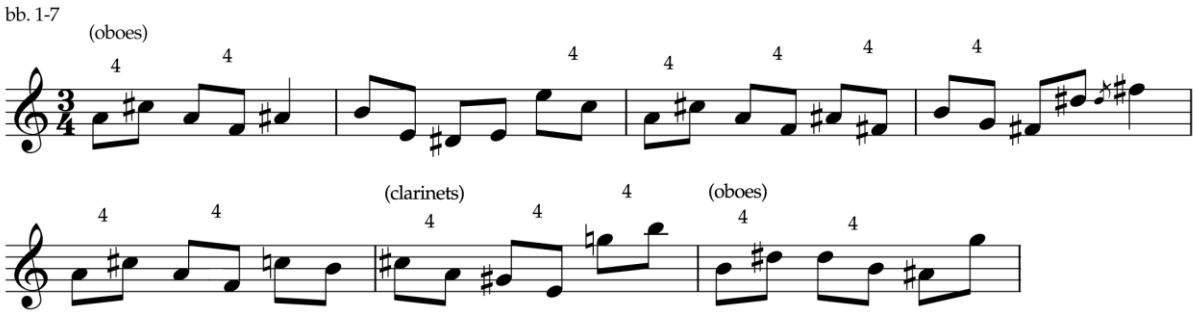
once the collective parts are sounded simultaneously do these "disquieting harmonic aggregates" work? To some extent they do, but it is not as consistent as some other pieces, perhaps because of the transitory nature in which multiple techniques are used from different periods of the composer's orchestral writing.[14] We know that the piece was in development since 1971 and the *CB* did not become a consistent compositional resource until 1977.[15] One interpretation of "BID" is that it was an experiment from which Zappa could realise in the physical realm ideas he had been working on for years and in that respect does not differ from other orchestral pieces. Ultimately, Zappa viewed certain compositions as experiments to be tried out and on hearing them he could later modify, develop or dismiss specific parts or sections.

Intervallic Manipulation

Let us now look at examples that strongly suggest the written form as being the initial conception of ideas. The examples illustrate common intervallic sequences which are maintained or progressively unfolded in either contractive or expansive form. The objective appears to be less about melodic development and more to do with intervallic manipulation with small sets of consecutive interval sequences exploited at various points throughout. Of course intervallic manipulation will incur melody as a by-product of such a process, but the emphasis here seems to be on the development of intervallic sequences where melody becomes automatic. The first 7 bars exhibit a tendency for interplay of ic4 in two of the top voices (oboes and clarinets), a characteristic that for the most part is confined to the oboes and clarinets. Since

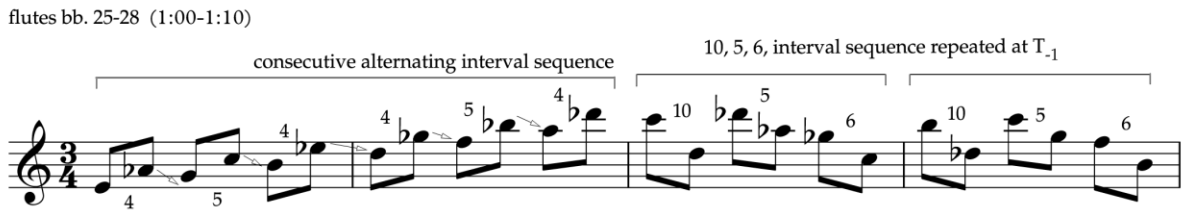
[14] We have already observed in chapter 4 that "The Perfect Stranger" implements *CB* harmony in a consistent manner whereby notes used to construct large densities can be traced to a parent scale. In "BID" densities appear as scalar and non-scalar derivations illustrating a transition from older to newer methods of composing.
[15] This is based on Clement's assessment and analysis of *CB* usage which seems to have been in operation between the years 1977-1982. (2009, p. 199).

there is a substantial collection of successive ic4 intervals in the first few bars of the piece, it is likely that this was the result of intervallic manipulation.



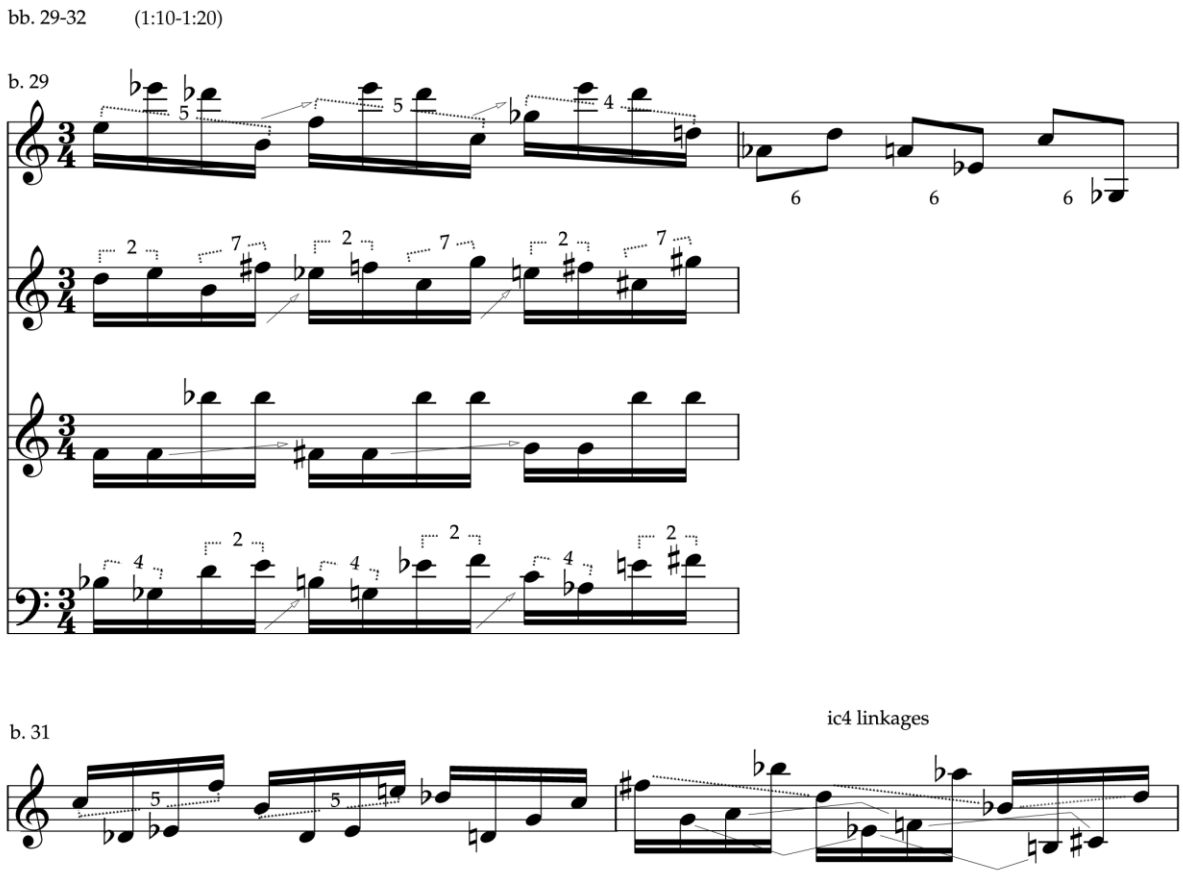
EXAMPLE 5.1. Interplay of ic4.

Within b. 1, the second and fourth notes pivot on the (A) note axis proportioned at the distance of ic4 intervals. This is repeated at b. 3, as before maintaining the equilibrium yet simultaneously instigating a progressive semitone ascension of ic4 starting from the third and fourth notes, (A, F) (A#, F#) (B, G). By looking at this short sequence as odd and even numbered configurations, we can observe (A, A#, B) and (F, F#, G) respectively. This interweaving of semitonal movement is a common feature in the piece and this micro occurrence hints at greater implementation of the device thereafter. In bb. 25-26 (ex. 5.2) the semitone linkage is between the last and first note of each subsequent pair of quavers, so that the second note of b. 25 (Ab) moves down a semitone to the first note of the next quaver set (G) and so on. The manner in which this particular phrase unfolds is very pattern-like and the consecutive alternating of intervals if viewed from the beginning of b. 25 to the end of b. 26 produces an intervallic palindrome, (4, 5, 4, 4, 5, 4) after which, a sequence of pitch intervals (10, 5, 6) in b. 27 is duplicated at b. 28.



EXAMPLE 5.2. Consecutive alternating sequence bb. 25-28.

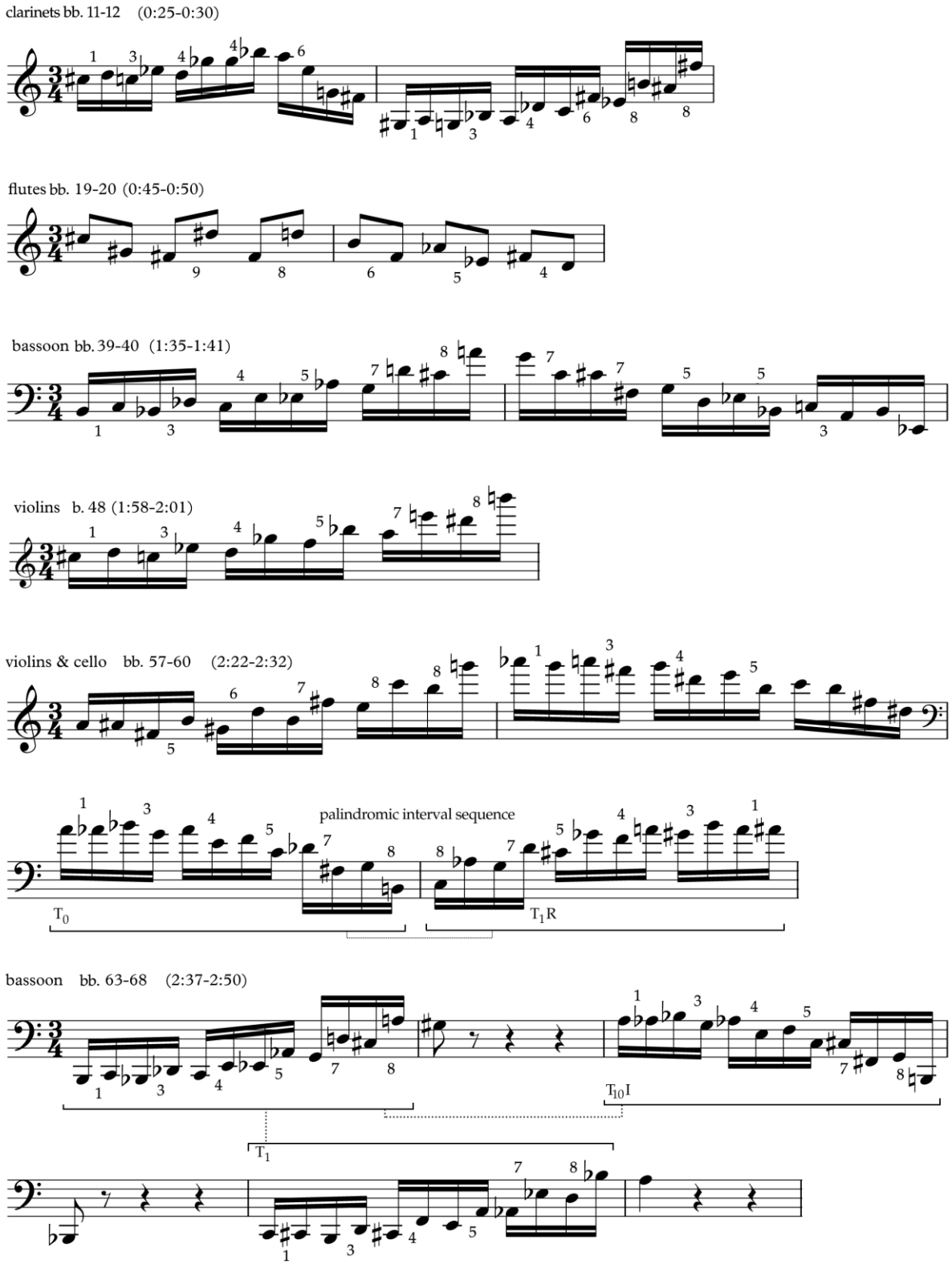
In (ex. 5.3), the upper voices at b. 29, (Eb) and (Db), are pivotal in 3 instances to the notes either side which ascend in semitonal increments of ic5 and ic4. Tracking this line in the same bar is the third voice where the high (Bb) notes act as stabilisers for the ascending notes (F, F#, G), while consecutive alternation occurs in the second and fourth voices. In the second, the sequence contains pitch intervals (2, 7, 2, 7, 2, 7), and in the fourth (4, 2, 4, 2, 4, 2) with each 4 note semiquaver set moving upward by a semitone. There is an interesting formation of ic4 in b. 32 whereby the first 3 notes of each 4 note semiquaver set are connected by ic4. This section exemplifies a high degree of interconnectivity between notes and its deployment by selected orchestral textures creates a strong burst of high energy and intensity which seems to be fixed but moving at the same time.



EXAMPLE 5.3. Intervallic manipulation, bb. 29-32.

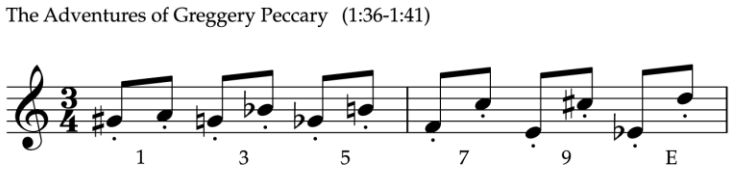
Intervallic arrangement in the following example exhibits contractive and expansive progressions. The first instance of this is in the clarinets at bb. 11-12 where expansion begins from ic1, (see ex. 5.4). In b. 11, semitonal connection occurs between each subsequent 4-note semiquaver set (Eb-D, Bb-A), similar connectivity occurs in bb. 39, 48, 59, 60 and throughout bb. 63-68. A gradual interval contraction occurs in the flutes at bb. 19-20, beginning on the second beat of b. 19 with pitch intervals (9, 8, 6, 5, 4). The bassoon at b. 39 shows an ascending line with progressively expansive intervals from (1) to (8). The line continues in b. 40, this time descending with a contraction of pitch intervals from (7) to (3). Bar 48 is another example of progressive expansion almost fulfilling a complete sequence of ordered intervallic expansion (1, 3, 4, 5, 7, 8). A more uniform deployment is found in the violins and cellos at bb. 59-60 wherein the same intervals contract and expand from (1) to (8) and then from (8) back to (1);

essentially this palindromic interval sequence is a T_1R of T_0. Bar 65 in the bassoon is a $T_{10}I$ of b. 63, and b. 67 is a T_1 of b. 63. What binds these sequences other than the fact that they exemplify a progressive interval contraction and expansion are the actual pitch intervals, which for the most part fall between (1) and (8) ascending and descending successions.



EXAMPLE 5.4. Expansive and Contractive Intervals.

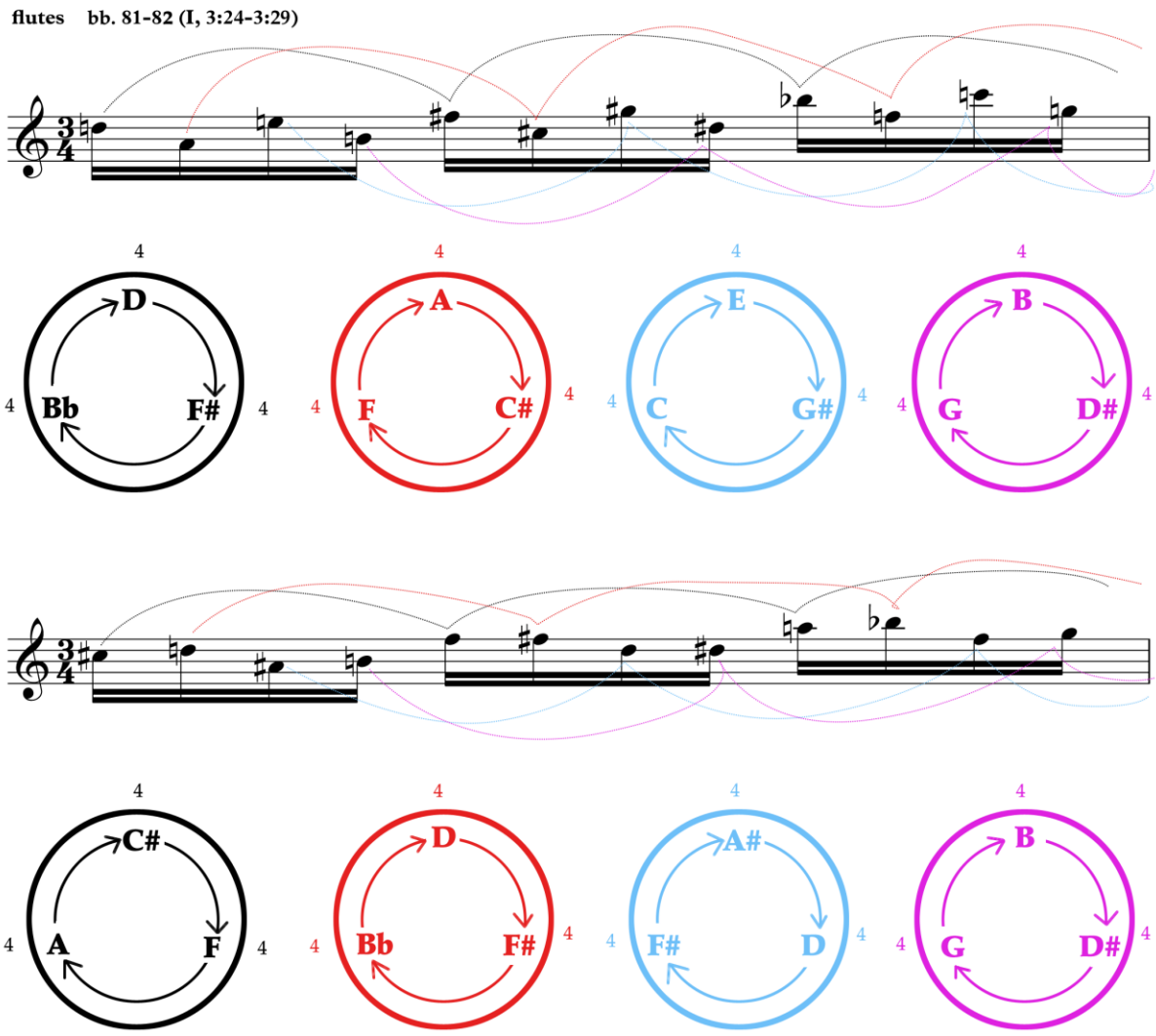
Although there is the inference of pitch symmetry within these extracts, it is not fully realised. The only exception is in the violins and cellos at bb. 59-60 wherein a symmetrical formation takes place, albeit with a transposition at T_1 which in the above example is marked as an intervallic palindrome with the point of axis between the (B) and (C) at the end of b. 59 and start of b. 60. Complete pitch symmetry is less frequent in Zappa's compositions, but it can occur, although fleeting in nature, symmetrical fulfilment takes place in an excerpt from "The Adventures of Greggery Peccary" where intervals centred on an axis disperse as follows; (1, 3, 5, 7, 9, E). Example 5.5 shows this uniform expansion of intervals where on the first beat of the bar hovering around the (G#) axis is an outward dispersion of equally expanding intervals. The sequences from (ex. 5.4) differ in that there is the inference of symmetry as a result of its instigation and subsequent disruption. This could reflect aspects of the written form in which symmetry, at the time of conception, was susceptible to modification later on. But why would the composer create a sequence of notes that almost fulfil symmetry? Why not consummate the symmetry? It could be that a symmetrical phrase might look good on paper but once performed alongside preceding or proceeding musical events, require modification in order to maintain a continuity.[16] The result is often a haphazard type of symmetry that is unfulfilled yet without impingement on the music.



EXAMPLE 5.5. The Adventures of Greggery Peccary (pitch symmetry).

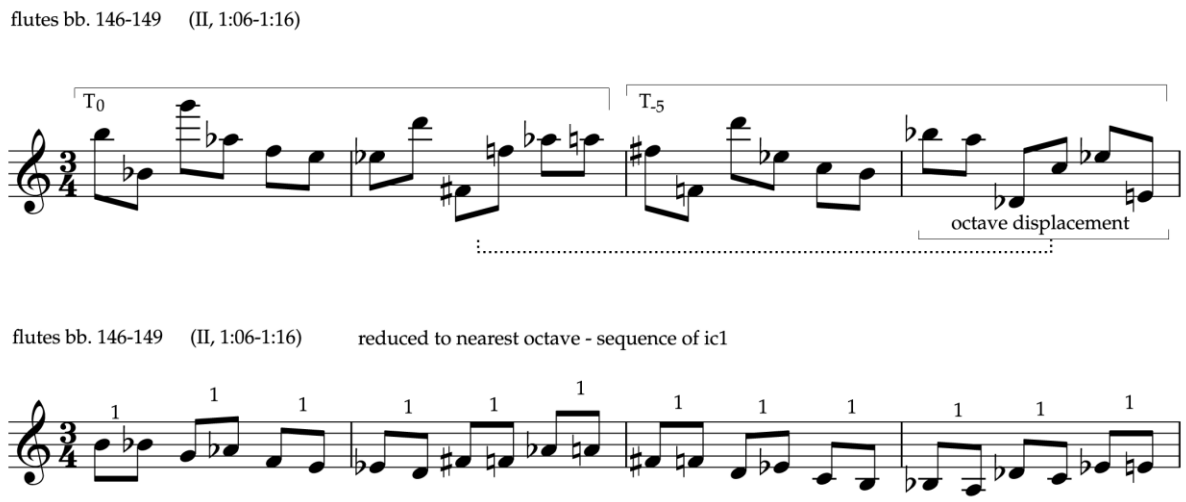
[16] It is also possible that Zappa could have realised symmetrical sequences on the piano as his approach to playing single notes was well suited to progressively expanding symmetry (see ex. 6.15) as Nigey Lennon explains, "Frank's involvement with keyboard instruments was limited to hunt-and-peck note picking when he was composing". Lennon, N. 2003. *Being Frank: My Time with Frank Zappa*, California: California Classics.

Consecutive interval sequences largely define "BID" and are consistent throughout, manifesting into solo and contrapuntal lines. Bars 81-82 (ex. 5.6) exhibit this characteristic by maintaining specific intervallic sequences where pattern-like formations unfold, suggesting another example of drawn music. By connecting the first note of each 4-note semiquaver group, a sequence consisting of ic4 unfolds. Carrying out an identical analytical procedure on the second note of each 4-note semiquaver group will again yield an ic4 sequence. The same result is achieved by starting on the 3rd and 4th notes of each group as exemplified in the diagram (ex. 5.6). Essentially this process illustrates notes mapping onto each other to create augmented triads but also indicates the potential for an infinite loop of ic4.



EXAMPLE 5.6. Cyclical Loop of ic4, bb. 81-82.

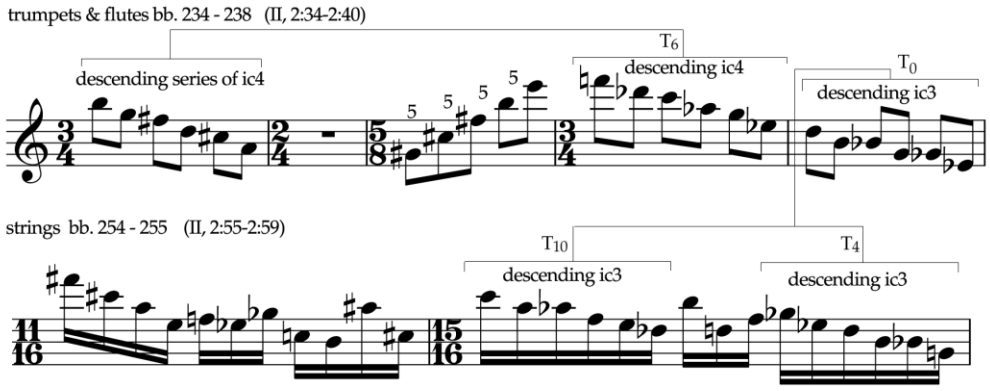
In the flutes from bb. 146-149, large intervallic leaps separate most of the notes within the sequence. The 4 bars are made up of a 2 bar melody repeated at T_{-5} with b. 149 concealing the repetition by octave displacement. Reducing the notes to the nearest octave reveals a sequence of ic1 where each iteration is either connected by ic3 or ic4. The semitonal linkage between the highlighted intervals in previous examples (ex. 5.2 and ex. 5.4) is now less of a connective device and more a focal point.



EXAMPLE 5.7. Sequence of ic1.

Further evidence of intervallic manipulation occurs between bb. 234-255. At b. 234, the top line of this section consists of a descending series of ic4 repeated 3 bars later at T_6. At b. 238 the descending sequence continues but with ic3 which is repeated at b. 255 at T_{10} and T_4. Incidentally, the top line is not confined to one instrument, with the 1st trumpet playing the first descending ic4 sequence and the flutes, the second. Also throughout this section the top line is supported by harmony and so the interplay between instrument sections and sequences is rapid.

The passage continues in this fashion with daring implementation of melodic lines distributed to the different sections of the orchestra.[17]

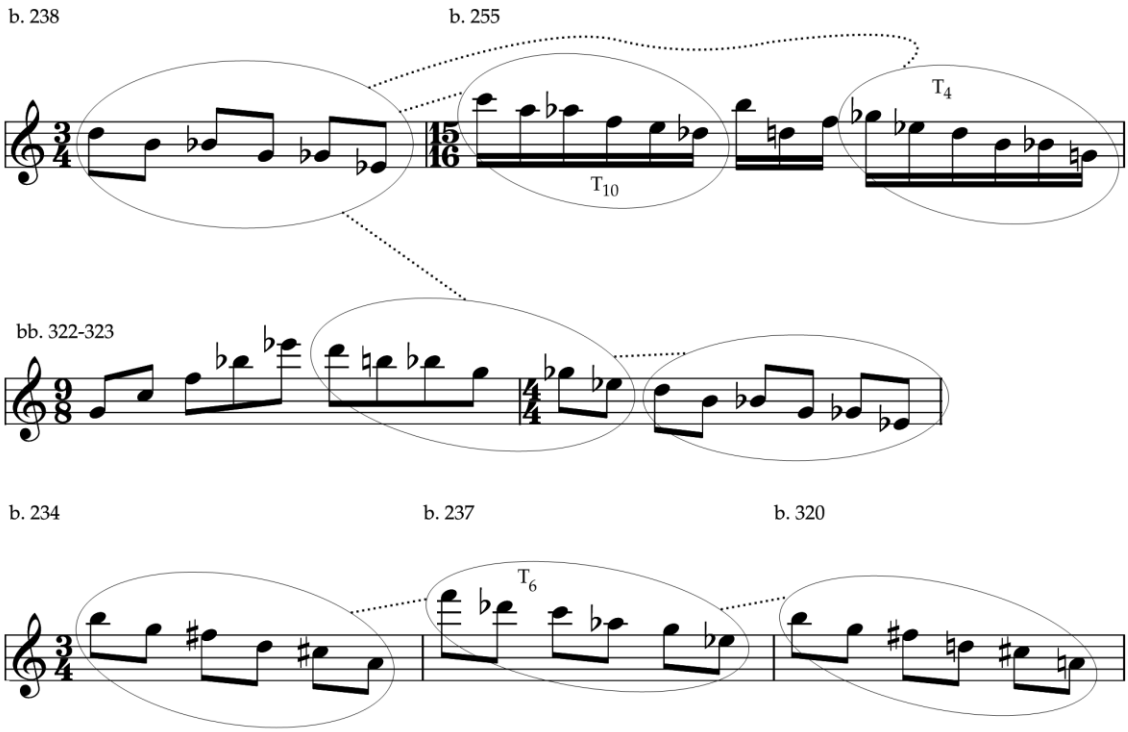


EXAMPLE 5.8. Interval Sequence Correlations.

If we re-examine bb. 234-255 we discover a fragmental distribution of certain parts later on in the piece. The descending ic3 sequence identified in the previous analysis of this section is subject to fragmental repetition. The first statement of it at b. 238 is repeated at T_{10} and T_4 respectively in b. 255 as already discussed, but it appears again at bb. 322-323 (ex. 5.9). In addition, the descending ic4 sequence at bb. 234 and 237 reappears at b. 320. This is typical of the way Zappa would develop repetitions of previous music material. The process is consistent

[17] I refer to this as 'daring' since the interplay between different sections of the orchestra at this point is complicated. The abrupt exchanging of lines between bars, time signatures and instrument sections culminate in a rapid textural contrast which is only just carried off. Bars 254-255 have time signatures of 11/16 and 15/16 where every semiquaver is accounted for by the strings followed by 2 bars of 2/4 and 3/8 respectively with semiquaver syncopation in the woodwinds with the strings returning at b. 258. Zappa mentioned that trying to get an orchestra to play odd rhythms in synchronisation was a challenge, "I tend to be a little more conservative if I'm just writing a score. They still have funny rhythms, but if there's a septuplet in the score I usually don't subdivide inside the septuplet for a large orchestra… when you're just waving a stick in the air in 4/4 time and you got 50 guys with violins in their hands and they're supposed to play that on time, you're begging for it." Clearly Zappa has opted for a more pragmatic method of writing this passage, ordinarily a bar of 11/16 would be written over simple or compound time as an undecuplet. In other words, a bar of 11/16 would be easier for a larger group of musicians to execute the rhythm more precisely as opposed to 11 in the time of 4 for example. It is then followed by a bar of 15/16 which appears less challenging than 15 semiquavers to be played in the time of 16 within a bar of 4/4. Here, prior judgement of expected outcomes is reflected in the writing; from experience of attempting to get the optimum performance of coordinated irregular rhythms, Zappa is opting for a simpler form of notation for the sake of expediency and efficiency. According to his mostly negative reported experiences of time constrictions when dealing with a hired orchestra it would be of paramount importance for the composer to get prompt results.

and occurs in “Pedro’s Dowry”, “Mo ‘n Herb’s Vacation”, and “The Perfect Stranger”, although in the latter the repetitions are more conspicuous.

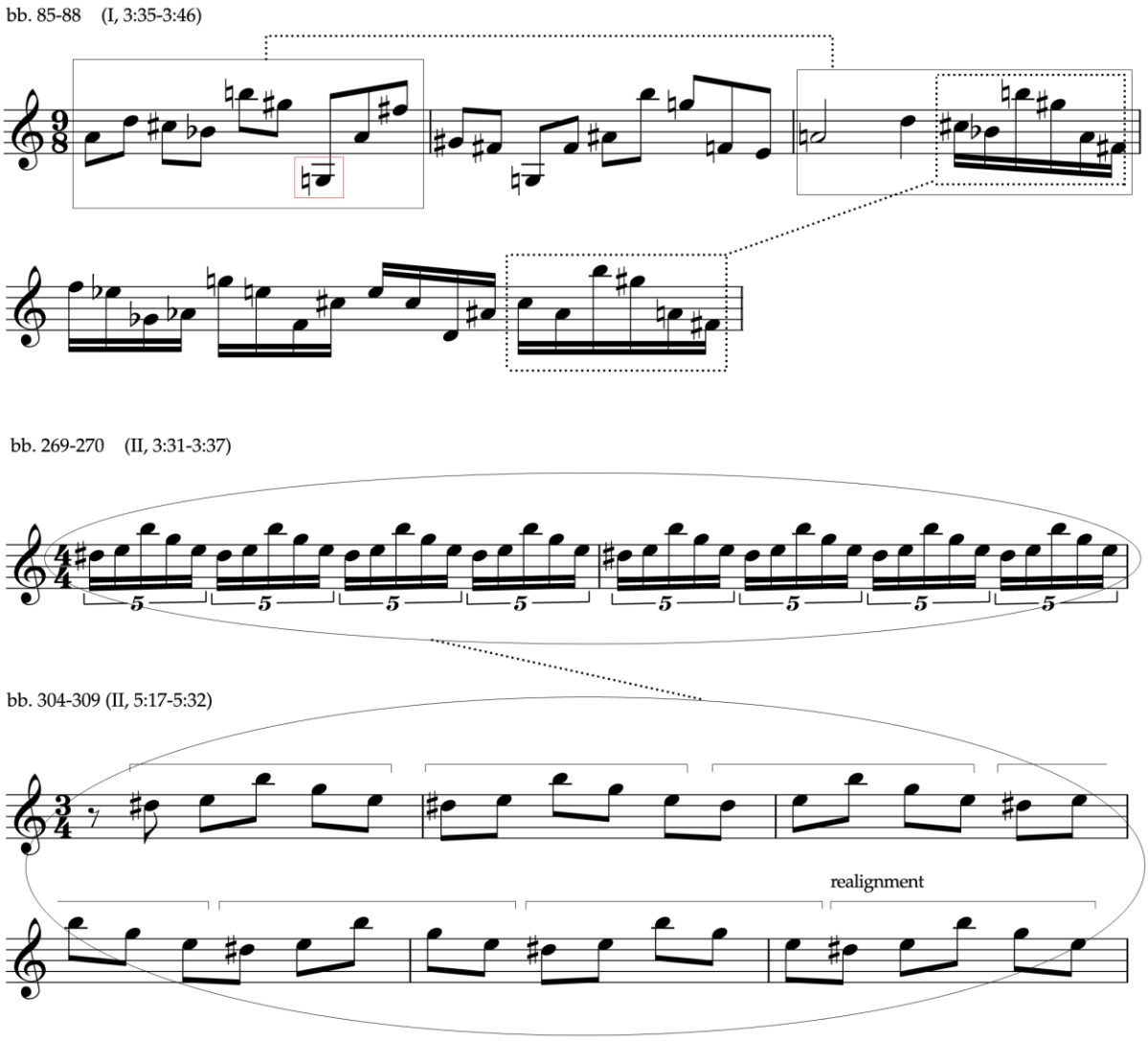


EXAMPLE 5.9. Fragmental Repetition.

Isomelic Variation

Many of the fragmental and sectional repeats in “BID” facilitate *isomelism*, but its occurrence is not as widespread as in the other pieces in this study. One example of this technique is between bb. 85-87 which is relatively easy to identify as presented in (ex. 5.10) but is not so evident in the recording. Discreet forms of repetition are common practice and here is another example of this subtlety, however, the isomelic activity at this juncture is relatively confined to the few bars shown. In b. 85 is a series of quavers repeated in b. 87 as a minim, crotchet and a group of semiquavers, with those contained within the dotted box branching off to form further fragmentation at b. 88. The (G) note in b. 85 slightly disrupts the isomelic variation that

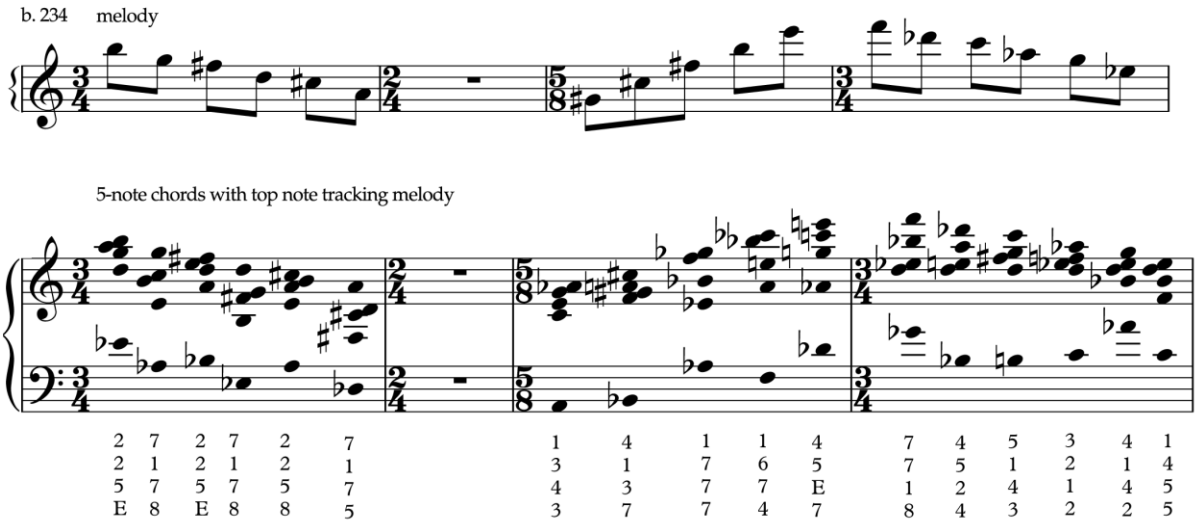
occurs at b. 87 but does not greatly detract from the repetition in the score. A further example of *isomelism* is between bb. 269-270 where quintuplet figures outline a 5-note sequence repeated as quavers in bb. 304-309. The 5-note sequence as a quintuplet fits comfortably within 4/4 time and can be repeated consecutively without any disruption to the metric pulse, but its reiteration as quavers from bb. 304-309 presents a sustained misalignment commencing at b. 305. It takes another 4 bars before the 5-note sequence is realigned.



EXAMPLE 5.10. Isomelic Variation.

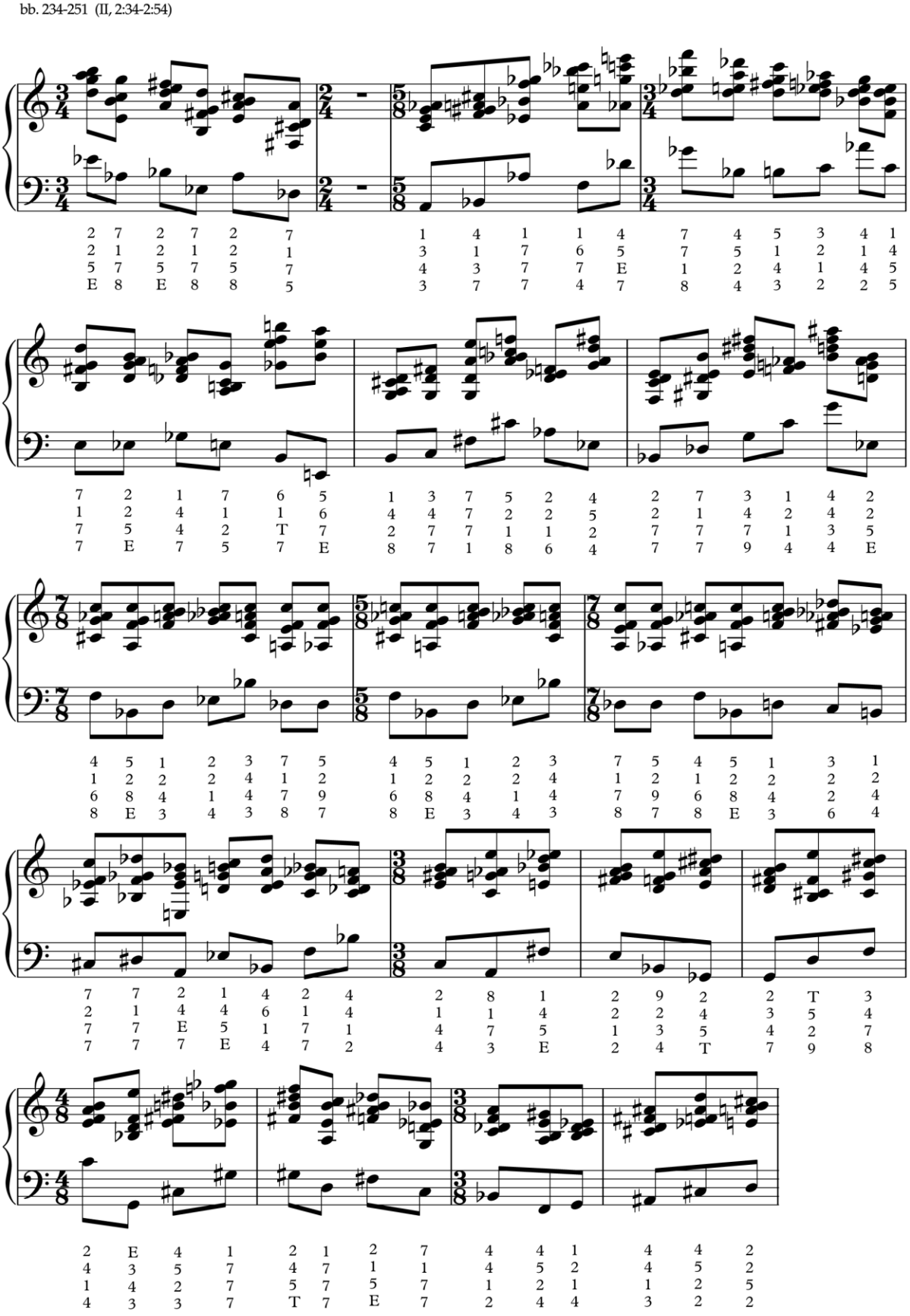
Intervallic Permutation in Chords

I shall now focus on the chords that are formed from all voices in bb. 234-251 and interpret them as a succession of 5-note chords where the top note is the melody. As noted in chapter 3, Zappa had discussed the process of creating a melodic line and harmonising it using specific chords. It would proceed as follows: a melody is written out and the composer would then choose chords that he wanted to hear against each note of the melody. In this case, the top note of each successive 5-note chord would essentially become the melody, a tracking process whereby automatic counterpoint could take place. The intervallic structure of each chord is determined by the composer, selecting specific chords for each harmonic verticality. Once the melody had been established, it would then be a case of inserting the 5-note chords with the top note of each selected chord providing the melody (see ex. 5.11).[18]



EXAMPLE 5.11. Chordal Tracking of Melody.

[18] It is not possible to account for every chord between bb. 234-251 as a member of the *CB*, however there are some which are confirmed derivations, for example, D(4, 2, 5, 4), D(3, 4, 4, 3) and D(7, 7, 1, 7), are chords which feature in "BID", "Sad Jane" and "Sinister Footwear".



EXAMPLE 5.12. Succession of 5-note Chords Tracking Melody.

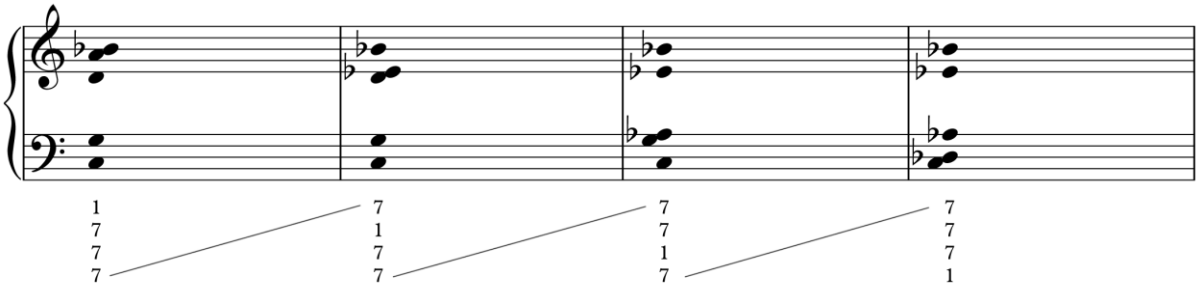
If we observe the behaviour of the chords tracking the melody during this passage we notice some interesting characteristics. Many of the chords are related by the shuffling of a shared interval series. For example, a chord may contain a collection of 5 notes separated by the following intervals (E, T, 6, 7), and if we were to reorder them in the following way (E, 7, T, 6) the result would be an interval permutation of the former. The two chords do not share the same set class, [0,1,2,3,6] and [0,1,2,6,8] respectively, therefore are not related by transposition or inversion, but they can be said to share a similarity in the aural. On closer inspection it becomes apparent that during this section of "BID", many of the chords share the same interval series. For this part of the analysis, I shall refer to Drew F. Nobile's nomenclature found in his article *Interval Permutations*.[19] In the article, Nobile illustrates how his theory of interval permutation relates a collection of ordered pitch classes by a simple process of intervallic reordering.

> An "interval permutation" is a reordering of the intervals that arise between adjacent members of these pitch-class segments. Because pitch-class segments related by interval permutation are not necessarily members of the same set-class, this theory has the capability to demonstrate aurally significant relationships between sets that are not related by transposition or inversion.[20]

This is of significance when adapted to "BID" because we find a variety of chords which exhibit this kind of correlation. I have chosen this section (bb. 234-251) to analyse the structure of the chords and their interval permutations as it is a sustained passage of 5-note chord successions as opposed to alternating cardinality forms which can be found elsewhere in the piece. This is not to infer that higher cardinality chords are exempt from this procedure, but that this section provides the opportunity for a more uniform presentation of interval permutations within one cardinality set of consecutive chords. The choice of chords subject to interval series analysis are ones that provide the most correlations made from simple operations (see examples 5.13-5.15). This is not a random choice but simply a culling process of the chords

[19] Nobile, DF. 2013. 'Interval Permutations', *Music Theory Online*, 19(3) pp. 1-18. http://www.mtosmt.org/issues/mto.13.19.3/mto.13.19.3.nobile.html (Accessed: May 17 2015).
[20] Ibid.

which do not generate a high yield of interrelated chords. To exemplify the basic premise of interval series analysis and its application to "BID", I have presented a single interval series found in the third chord of b. 236 with an intervallic structure of (7, 7, 7, 1) that is rotated; (7, 7, 1, 7), (7, 1, 7, 7), (1, 7, 7, 7).[21] The series does not adhere to a single pc set, so although an interval series is the same in each rotation it may differ in pc set membership. If we identify the instantiations of this interval series within the score, (7, 7, 7, 1) appears in b. 236, with (7, 7, 1, 7) in b. 238 and (1, 7, 7, 7) in b. 239. By isolating those three chords and placing them side by side, it becomes clear that notwithstanding the inconsistent pc set membership, they share similarities. It is important to note that the rotation shown in (ex. 5.13) is a rotation of the intervals and not the notes, with each one beginning from the note (C). Although there is only one series class (7, 7, 7, 1), and not all pitches of each permutation correspond with each other, aural similarities prevail as a direct result of the shared interval series.[22]



EXAMPLE 5.13. Rotation of an Interval Series.

[21] (7, 7, 7, 1) occurs earlier on in the piece on the first beat of b. 221.
[22] Nobile coins the term "series class" as a means to establish a specific collection of intervals where the "interval series" is the number of times a series class can be reordered.

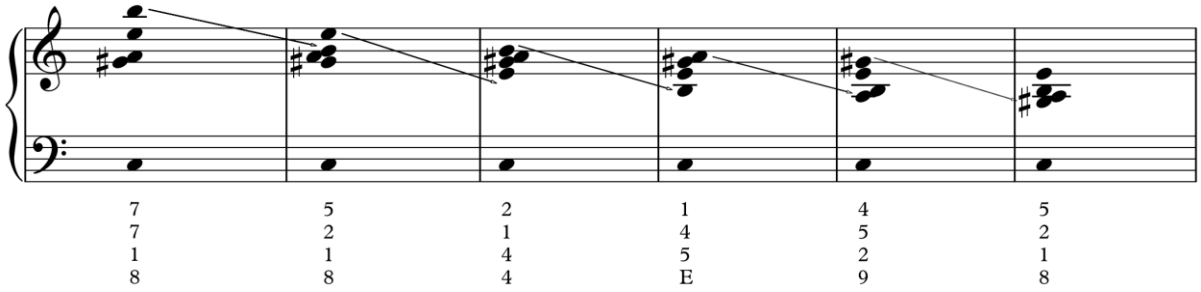
Further interval permutations can be produced by taking any chord and lowering the top or raising the bottom note an octave.[23] The significance of carrying out this procedure is measured by the occurrences of the chord derivations yielded by each subsequent octave ascent or descent. In other words, if each intervallic transformation creates a chord that appears in the section under study herein (bb. 234-251), then this would justify to some extent the illustration of the octave alteration process and show consistent correlations. For example, if we take the following chord (C, F, Bb, D, D#) - (5, 5, 4, 1) and move the top note (D#) down an octave, the chord now becomes (C, D#, F, Bb, D) - (3, 2, 5, 4); two chords which appear at various points in the section under study. We observed this phenomenon in "The Perfect Stranger" only with higher cardinality chords where slight alteration to one note within a chord can create a different interval structure. I explained this process as a means to provide some sense of continuity in instances of successive chord formation in the piece to show that although different intervallic structure is evident in a subsequent chord it remains closely related to its predecessor.

An octave change of the lowest or highest note of the chord produces a different series for each adjustment. Focusing on the interval series (8, 1, 7, 7) at the beginning of b. 237, an interesting development can be observed if we drop the top note an octave. Apart from generating a new interval series we begin to see a network of closely related chords as the octave descent of each subsequent chord is maintained (see ex. 5.14). By dropping the top note an octave of (8, 1, 7, 7) we get (8, 1, 2, 5), a chord that appears in b. 239. If we continue with

[23] The reason I have adopted this process is because it seems plausible that Clement's determination of the root of certain chords can be applicable to any given chord for identifying correlations. If as Clement suggests by determining where the root note of a chord resides, if not at the bottom of the chord, is somewhere within the chord then the octave change as a means to identify the root is an appropriate method for making correlations other than root identification. In other words, Clement is confronted with two large chords, one beginning on the note (F) with an intervallic make up of (E, 3, 1, 3, 1, 2) identified as a ML2 chord, the other is (1, 2, 1, 3, 1, 2,) but starts on the note (E). By carrying out a simple operation whereby the root note of the first chord is raised by an octave it reveals that the two chords are related, both are ML2 chords with one very simple modification that has caused the second chord to disrupt the intervallic structure of the first (Clement, 2009, p. 367). However, in my analysis of this section, I am not attempting to identify roots by carrying out the octave displacement procedure, I am simply trying to make correlations with other chords.

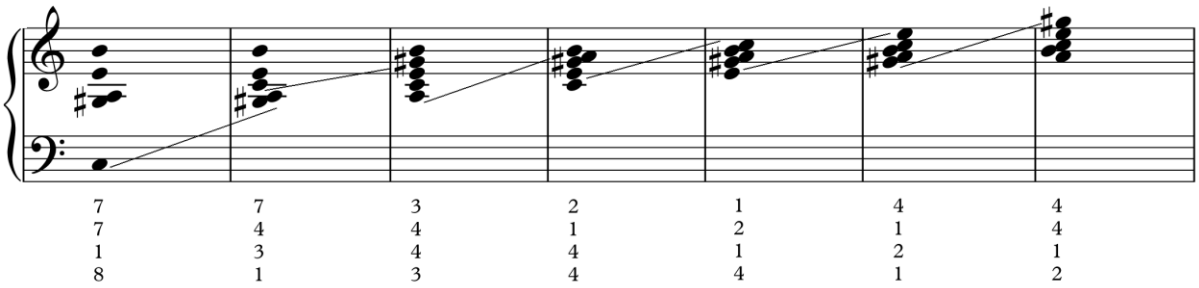
this process, (8, 1, 2, 5) becomes (4, 4, 1, 2), the latter of which is an interval series subject to a variety of permutations within this section of the piece (see ex. 5.12), appearing at b. 237 (2, 4, 1, 4), b. 243 (4, 4, 2, 1), b. 244 (2, 1, 4, 4), b. 245 (4, 4, 1, 2), b. 248 (4, 1, 4, 2) and b. 250 (2, 1, 4, 4), (a reiteration from b. 244). This recurrence implies a sense of continuity, at least in theory, as the chords that generate the permutations are of the same interval series (4, 4, 1, 2). Resuming the octave descent process illustrated in (ex. 5.14); a top note octave descent of (4, 4, 1, 2) yields (E, 5, 4, 1) at bb. 244 and 245 which then becomes (9, 2, 5, 4) which is not present in this particular section of the piece but does appear at bb. 216 and 224. The final chord in the example is (8, 1, 2, 5) that was earlier derived from (8, 1, 7, 7) but is now formed by dropping the top note an octave of (9, 2, 5, 4). This is caused by the fact that in this presentation of chords, each one is constructed from the same starting note and therefore share the same pitch classes. In theory, by moving any note of a chord so that a different intervallic structure is generated will ultimately have no effect on the pitch classes because only the ordering changes and not the notes. This occurs only within the confinement of these examples since the chords are taken out of context and presented consecutively in order to make clearer the correlations. The chords are not consecutive in the score, rather they are spread throughout the section. Also as the music unfolds the chords are not restricted to the same starting note, a by-product of the method of inserting chords to support the melody thus generating the varied starting points for each. A final observation in (ex. 5.14) is the two occurrences of (8, 1, 2, 5). The occurrences of this chord reveal that if we continue to apply the octave descent we will enter an endless loop with all chords between the two instances of (8, 1, 2, 5) being repeated every fifth chord as in (8, 1, 2, 5), (4, 4, 1, 2), (E, 5, 4, 1), (9, 2, 5, 4), (8, 1, 2, 5), (4, 4, 1, 2), (E, 5, 4, 1), (9, 2, 5, 4), (8, 1, 2, 5) etc. We could in fact delve much further into the mathematical possibilities of these and aforementioned chords, however three reasons prevent this kind of exploration, firstly I am not a mathematician, secondly I merely want to reveal connectivity

and correlations within the confinement of this section so that the approach may be extrapolated in other extracts of Zappa's compositions. And thirdly, it is unlikely that Zappa thought of these correlations so systematically, preferring to randomise the sequences which is evident in the score by the uneven distribution of these chords.



EXAMPLE 5.14. Chords Rotated by Octave Descent.

More correlations are possible by raising the bottom note of a chord an octave. In (ex. 5.15) each octave ascent rearranges the preceding chord to reveal a network of interval series that correspond by this simple reordering. The aural salience is significant even though the intervals are restructured. If we preserve our previous starting point with (8, 1, 7, 7) and continue with octave ascents this time round, we produce another sequence of chords. The octave ascension of the lowest note of (8, 1, 7, 7) produces (1, 3, 4, 7), and although it does not occur in this section, a reordering of this interval series, (7, 3, 1, 4) appears at b. 236. The next chord in our example is (3, 4, 4, 3) found in b. 241; raising the bottom note of that chord gives, (4, 4, 1, 2) which was also generated by an octave descent in (8, 1, 2, 5). This again exemplifies the interconnectivity of some of these chords and the ubiquity of (4, 4, 1, 2) with its interval series derivations as discussed above. (4, 4, 1, 2) is followed by (4, 1, 2, 1) from bb. 240 and 250, then (1, 2, 1, 4) is proceeded by (2, 1, 4, 4) which is in b. 244.



EXAMPLE 5.15. Chords Rotated by Octave Ascent.

This procedure of interval swapping facilitates variation that can ultimately be traced back to any designated chord; that is a chord chosen as a starting point from which to relate subsequent permutations. This type of analysis shows greater cohesion between chords and a strong network of intervallic permutations. We can see how simple operations can yield different intervallic structures yet retain a similar sound. However, it is unknown if Zappa intentionally made these correlations while composing and although a micro system may be examined, there is no proof that is was intended or predetermined by the composer. This analytical strategy provides a basis from which to establish some continuity in the way that particular passage functions from a theoretical and aural perspective.

Chordal Analysis

CB harmony is evident throughout "BID", but compared to other pieces, most notably "The Perfect Stranger" and "Sinister Footwear", the implementation of it is sporadic and inconsistent which suggests an evolutionary stage of *CB* harmony deployment. As stated in the LSO programme notes, Zappa began work on the piece in 1971 and did not complete it until 1979.[24] *CB* theory was not in use until 1977, so inevitably other compositional practices had been employed hitherto. The chronology of Zappa's evolving compositional techniques and the implementation thereof causes an inconsistency of *CB* usage in "BID". Each phase of the developing composition would have coincided with the process and techniques used by the composer at that time. The work in progress became subject to various organisational procedures in use from 1971-1979. To substantiate this, examples of *CB* harmony are presented wherein we find its use in a transitory phase. Difficulties are encountered when examining successions of *CB* harmony densities. In general, there appears to be no consistent alignment of these chords or clearly defined method for the order in which they proceed. Therefore, understanding the choice for a succession of chords derived from the *CB* is difficult. In fact, it is highly probable that in some, if not most cases, a given succession of *CB* harmony was randomised. Zappa's copyist David Ocker corroborates this;

> I never analyzed the chords myself - beyond the time I typed them into the Synclavier, but they didn't seem then to have any particular order. Frank obviously could pick orders of chords so they made sense… It's just possible that if you wrote a program to play an endless random progression of those chords (with or without transpositions) they might just always sound fine no matter what the ordering.[25]

The implication is that it is almost futile to consider establishing theoretical coherence in the succession of these chords. The successions are used as an effect in which to create a dense

[24] LSO Programme notes (1983).

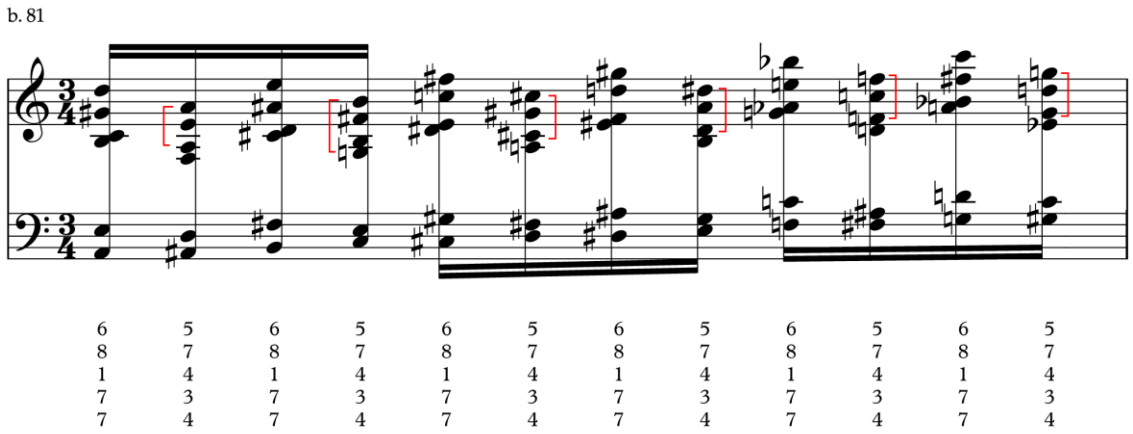
[25] David Ocker, e-mail message to author, March 17, 2015. In the same email, Ocker describes how he was once requested to enter *CB* chords into the Synclavier, "One of the things he did with the Synclavier was have me enter all the *Chord Bible* chords into the computer as macros. Then he took some melodies and used some identifier for specific chords on each note of the melody. Then I entered the melody harmonized with the corresponding chord macro transposed to the pitch of the melody note." According to the Synclavier Manual III Reference Guide, a macro is; "A series of commands and/or data executed or inserted by pressing appropriate keys." Synclavier Digital. (1996). Synclavier Manual III Reference Guide.

moving texture; to be interpreted as a whole with limited concern for tensional and resolvable qualities between each chord. Instead, the emphasis on tension and release is achieved by other means and within the highly chromatic pieces is often textural. However, there is a tendency for the successive alternation of certain chords and the employment of fixed intervallic chord sequences. Compared to the ever changing randomised deployment of chords elsewhere, alternation and fixed intervallic usage appears more strategic, even though the result might still be textural in effect. Not only does this show a more selective usage of chords but also helps to form a stronger bond between specific chords and increase the possibility of *CB* membership as a result of its repeated use.

The writing of consecutively fixed intervallic chordal structures was evident before the advent of the *CB*; a technique used for chromatic chords in which notes therein bore no relation to any particular scale.[26] "BID" marks the transition from a time that predates the *CB* to one where the *CB* played a major role in chord construction. This transitional phase is consistent with the appearance of sequential chords that are simultaneously at one and odds with the *CB* process. In "The Perfect Stranger" for example, chords are used in a consistent way where each one is made up of scales and are generally of the same cardinality. In "BID", a series of chords can be made up of different cardinalities, with note repetitions in some and none in others and chromatically structured chords and those built from scales. A succession of rapid chords will use *CB* harmony in the idealised way which is avoidance of note repetitions, yet these will be interjected by chords that have note repetitions. In b. 81 there is alternation between two chords; D(7, 7, 1, 8, 6) and D(4, 3, 4, 7, 5), but repetitions are in every other chord, and although *CB* harmony is employed, the repetitions detract from the general concept of non-repeated notes. Even if we were to read D(4, 3, 4, 7, 5) from the bottom up and omit the repeated note at the

[26] In "Dance of the Just Plain Folks", fixed intervallic diatonic successions are observed in chapter 7, but it is likely that these are conceived from chord extensions as opposed to a scalar approach. This assumption is based on two factors; the *CB* was not systemised until years after "Dance of the Just Plain Folks" was composed, and the chords therein consist of 6 notes, a cardinality that does not account for the entire 7-note diatonic scale.

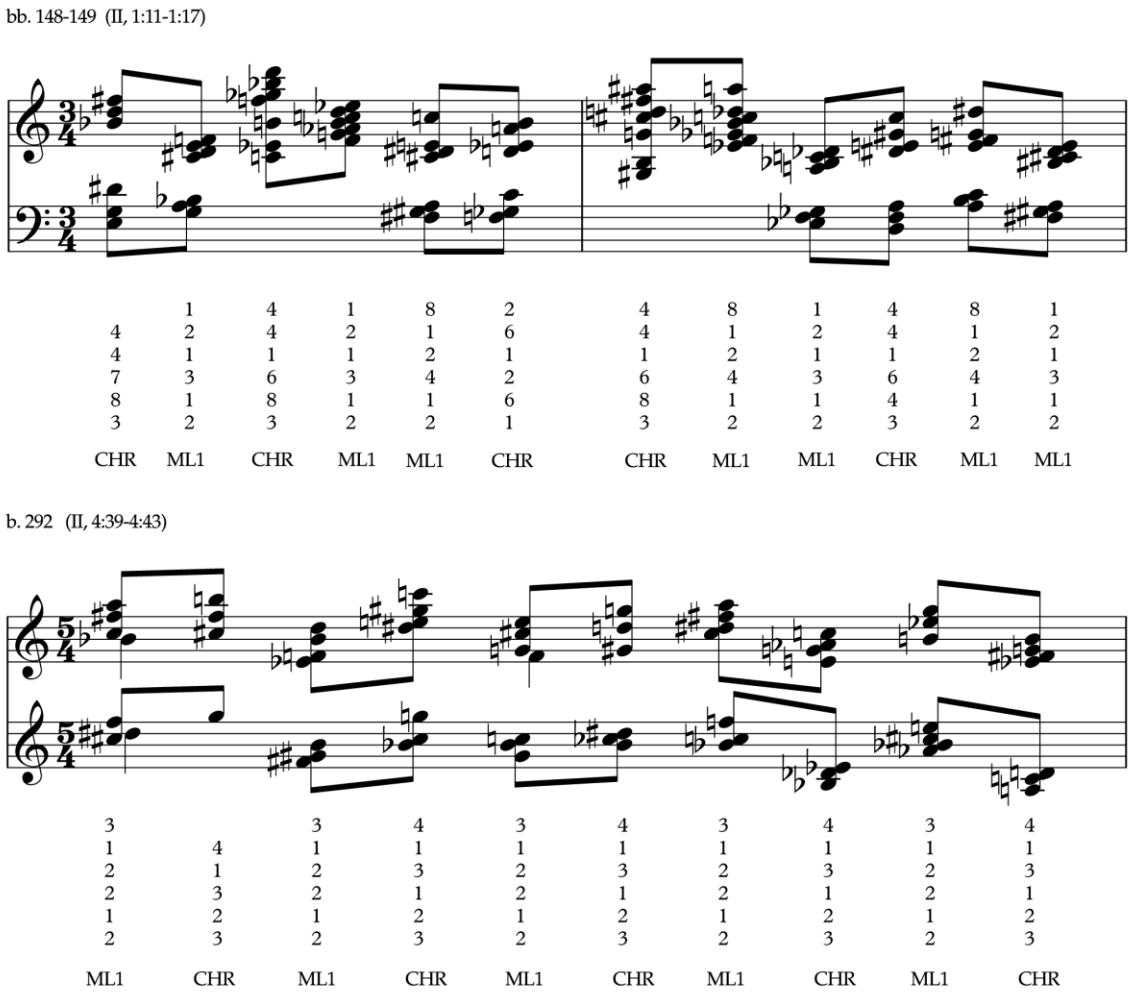
top of each occurrence of it, we would then have (4, 3, 4, 7) followed by (7, 7, 1, 8, 6) which would not only generate intervallic alternation between chords, but cardinalities too. However, it should be noted that repetitions can appear within a *CB* chord for orchestration purposes as we find many examples of this in "Sinister Footwear". One can assume that this would be to pad out the chords and create a more rich and dense sound. But, its use in "BID" at this point is unusual because only every other chord contains a repeated note of which is confined to the flutes and violas.



Example 5.16. Note Repetitions within Chords.

Another example of transitional application of *CB* harmony is evident between (**I**) bb. 148-149 wherein scalar derived chords are interjected by chromatic ones (ex. 5.17). The chromatic D(3, 8, 7, 4, 4) chord is followed by a scalar derived chord from the Minor Lydian (1) scale. This 'chromatic and scalar' alternation is repeated and then superseded by D(2, 1, 4, 2, 1, 8) which is another derivation from the ML (1) scale proceeded by a chromatic structure of D(1, 6, 2, 1, 6, 2). The interpolation of non-scalar chords continues in b. 149 with D(3, 8, 6, 1, 4, 4) and D(3, 4, 6, 1, 4, 4) complimented by ML (1) chords. Another illustration of this is exhibited in b. 292 with an almost constant alternating flow interrupted only by a cardinality discrepancy in the second chord. Apart from this, the intervallic make-up and chromatic-scalar alternation

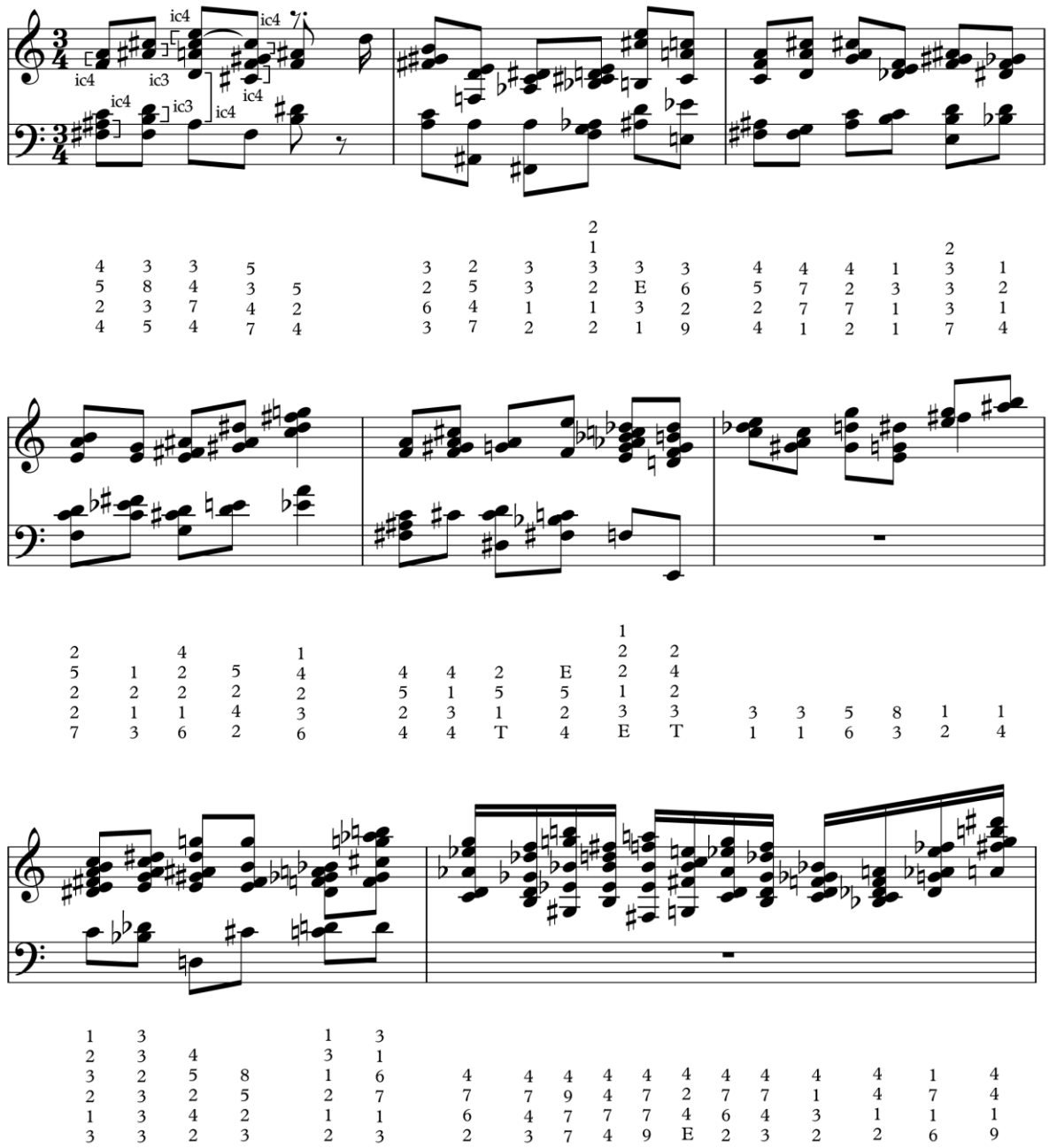
remains constant for this bar. The chords proceed as alternations between D(2, 1, 2, 2, 1, 3) and D(3, 2, 1, 3, 1, 4) which are ML (1) and chromatic structures. It seems that not only was alternation a consideration for intervallic structure but for scalar and non-scalar chords too. Perhaps there is an attempt to establish some small system of rapid tension and release much in the same way as alternating densities occur in other pieces. The only difference here is that there is an emphasis on the interchangeability of chromatic and scalar chords which in a way proves to be a good example of this transition. Generally, alternating densities are mostly exclusive to chromatic structures in pre-*CB,* and to scalar structures in post-*CB* compositions. Here we can observe a simultaneity of older and newer forms of composition marking the switch between two techniques.



Example 5.17. Minor Lydian and Chromatic Alternations.

One of the underlying principles of *CB* harmony in the later period of its development and implementation was the exhaustion of all notes within a scale to build a chord. This process makes it easier for the analyst to identify a particular scale from which a chord is built. In "BID", particularly the opening bars where there are 5-note chords, some ambiguity is apparent in regard to which scales they actually belong (ex. 5.18). Take for instance the first chord in b. 1, D(4, 2, 5, 4); the notes are derived from the Eb Minor Lydian scale, but because the seventh is not included, it could be the Eb ML (1) or (2) scale, that is with either a flattened or natural seventh. In contrast, the second chord D(5, 3, 8, 3) is more conclusive as belonging to the E ML (1) scale as the flattened seventh (D) is included, but as we can see here it is difficult to be absolute on the scalar resource for every smaller cardinality chord. The fifth chord in this bar is a 4-note chord with an intervallic make up of D(4, 2, 5), the obvious deduction to make here is that it is a segment of D(4, 2, 5, 4) transposed at T_5, but in a different context it could be a B Lydian chord or any of its modal counterparts. To explain the chromatic make-up of chords such as D(1, 1, 3, 1) in b. 3 and D(2, 4, 2, 5) in b. 4, either chromatic chords were part of the *CB* theory or these chords play a 'non-*CB*' interjectory part among the more scalar derived chords. Before the advent of the *CB*, chromatic chords were formed using a chosen interval structure irrespective of the chord's adherence to a scale. In other words, Zappa chose to assemble a chord whereby the intervallic structure was considered more important than notes adhering to scales. This type of 'irrespective of scalar derivation' construction of chords occurs in "Pedro's Dowry" for example.

bb. 1-8 (I, 0:00-0:19)



Example 5.18. Minor Lydian and Chromatic Alternations

The Horizontal or Vertical Contention

If we were to strictly adhere to the concept of independent "ugly lines" coinciding to produce "disquieting harmonic aggregates", the implication would be that Zappa wrote each melodic line separately and then with each subsequent line, ensured that while viewing the music vertically, few note repetitions occurred and that some kind of function was being fulfilled.[27] This means that the composer would have had to be overtly aware of the direction independent lines follow in order for them to converge at the same point forming scalar derived chords. Although this process is evident in parts of "BID", it is not so noticeable in the opening bars. If lines were conceived independently, how does one account for the large octatonic and Minor Lydian collections immersed within the music at this point? D(2, 1, 2, 3, 1, 2) is a *CB* derived octatonic density which appears in "The Perfect Stranger", D(E, 3, 1, 2, 2, 1) is a ML (1) derivation that is consistently employed in "BID" as well as the ML (2) chord, D(2, 1, 2, 1, 3, 1). One possibility is the deliberate interpolation of a scalar derived chord at interjectory points to reinforce or emphasise designated notes of the melodic line, for example on the last crotchet beat of b. 4 with the *sforzando* Minor Lydian derivative D(6, 3, 2, 4, 1). Elsewhere in the piece, there is stronger evidence of the manufacturing of independent lines where the horizontal continuum takes precedent over the vertical. This is exemplified by the greater number of successive chromatic chords yielded from the convergence of the independent lines. So when each harmonic structure within a succession is viewed vertically and only chromatic structures are formed, it is fair to assume that the compositional procedure at that point was more contrapuntal in intent. The combination of clearly defined scalar chords and those of chromatic nature merged with varying cardinalities displays a conflict of theoretical principles. This also further illustrates the transitory emergence into *CB* territory where antecedent and subsequent

[27] One exception to this is in b. 5, where D(4, 3, 1, 4) contains two (C#) notes.

methods are both simultaneously integrated. This is one of the interesting things about "BID", it is rich with compositional procedures in use over a protracted period of time.

Harmonic Duplicity in the Minor Lydian Scale

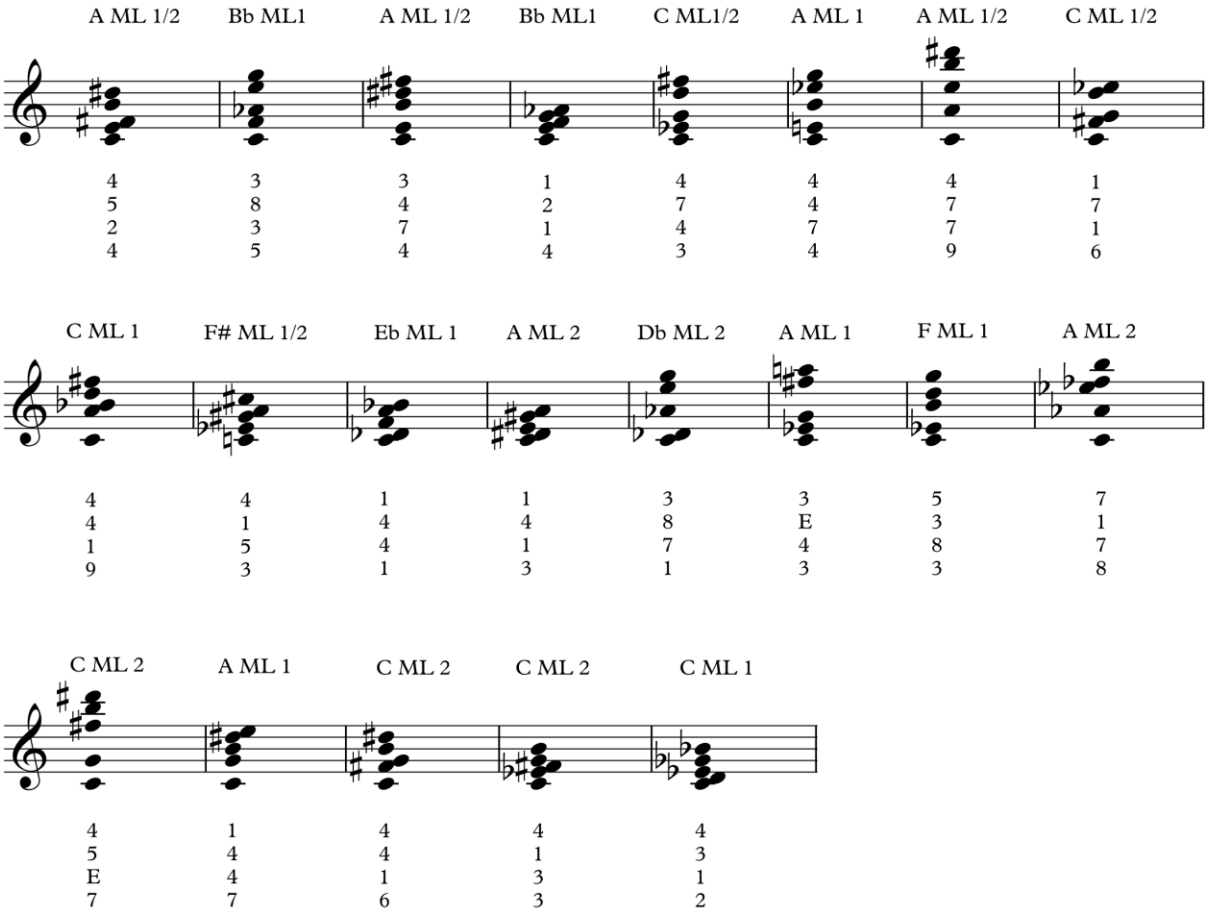
There are also examples in the opening chords where ic4 intervals are stacked a semitone apart, a characteristic found within the Minor Lydian scale between the 2nd and 4th, 3rd and 5th notes of the scale. Incidentally, these notes can be reduced to prime form [0,1,4,5] and is considered in greater detail as an integral part of many of Zappa's chromatic melodic structures in chapter 7. The idea of having ic4 or ic3 intervals stacked at specific distances apart implies an ambiguity of where the tonal centre resides and was something Zappa actively employed in certain pieces. In fact, it is possible that apart from attempting to establish a more formulaic process for the construction of chords in the orchestral works, the *CB* may have also evolved from the composer's polytonal ideas. Ed Mann explains how this process was used in the ECE piece, "Zoot Allures":

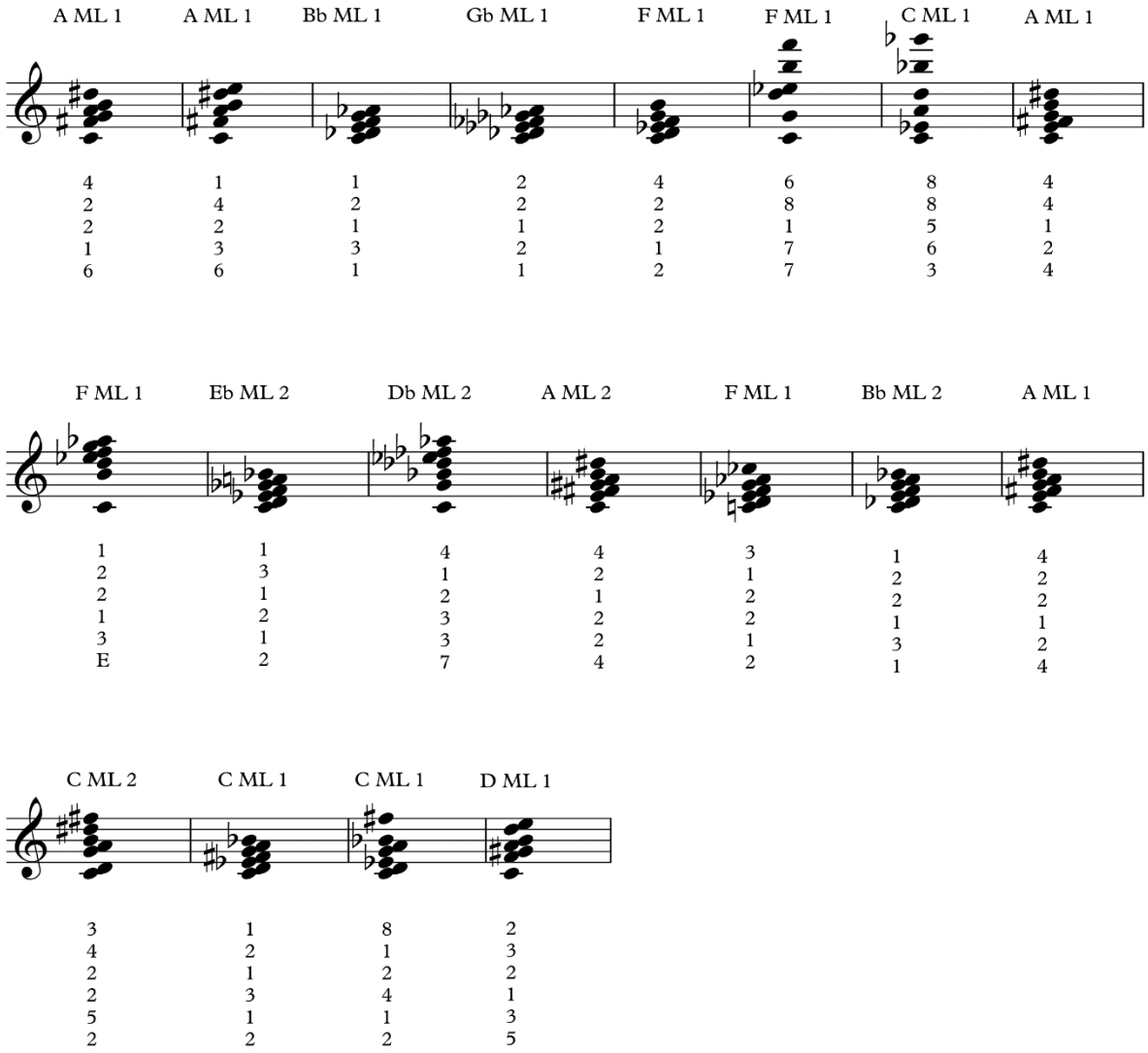
> Another concept was polytonal thinking, such as "C Major over A" (FZ would verbalize it in that way) instead of AM7 or AM9. Similarly, a P5 (strong) conjugated on the major seventh degree from a given tonic (ex. "Db/Ab over D") was used to impart 2 different feelings at one time, both strong/resolved and unsettling/unresolved... Once that framework was established, the 3rd degree (F) could be added between Db and Ab, creating kind of an ironic feel. An example of employing these 2 concepts in one composition is Zoot Allures.[28]

This idea of harmonic duplicity translates to the first chord in "BID" which has two instances of ic4 a semitone apart, that is (F#) (A#) and (F) (A), balanced on an axis of the note (C). As with the concept explained in "Zoot Allures", the simultaneity of tension and resolution is evident in this chord, as well as both examples being derived from the Minor Lydian scale. The appearance of Minor Lydian chords in "BID" is frequent and even though the root and 7th notes are occasionally missing from certain voices, the resultant notes can only belong to the Minor Lydian scale. If a chord appears to have the following notes from bottom to top; (Eb, G, A, D,

[28] Ed Mann, e-mail message to author, March 3, 2015.

F#) we can safely assume that this is derived from C ML even though the root and 7th notes are missing. In (ex. 5.19) I have presented all the Minor Lydian chords in order of appearance that occur in “BID”, excluding those which are ambiguous where speculation is required of its derivation. For instance a chord made up of the following notes (D, Eb, G, B, C), could in theory be derived from C ML (2), C Harmonic or Melodic Minor scales, therefore if the derivation is questionable as belonging exclusively to a Minor Lydian scale then it is omitted. The Minor Lydian chords are presented as cardinalities of 5, 6 and 7.





Example 5.19. All Minor Lydian Chords in "Bob in Dacron".

These chords suggest that the Minor Lydian sound was an important consideration during composition. At times its use is easily distinguishable by chords containing the entire scale as in the 7-note cardinalities and in places is consistently employed in succession. In other parts, particularly in the smaller cardinality chords, the absence of the seventh note of the scale suggests it could be of either ML (1) or ML (2) derivation. The ML is often intermingled with diatonic and chromatic chords seeming to function as part of an alternation. For example in (**I**) b. 40, it alternates between Dorian and in (**I**) b. 59 chromatic formations. The sonorous ubiquity

of the Minor Lydian certainly points to a greater use of it in compositions from 1976 onwards and to some extent would provide a clue as to when certain parts of "BID" were composed.[29] In "BID", Zappa had captured a work in progress; snapshots of an ongoing process which is apparent not only in the work itself but also the methods employed in its construction.

[29] One of the earliest and most conspicuous uses of the ML sound in Zappa's music appears in the recording of "Zoot Allures" with the polytonal execution of the ML within Zappa's guitar chords.

CHAPTER 6

Mo ‘n Herb’s Vacation

“Mo ‘n Herb’s Vacation” is a good example of how a seemingly inconsequential musical moment can manifest into a dramatic and expansive composition. According to Zappa, the piece was conceived from a small melodic fragment within the guitar solo of “Cruisin’ for Burgers” which was performed at The Palladium, New York in 1976.[1] In its entirety, “Mo ‘n Herb’s Vacation” clocks in at 27 minutes and 11 seconds, a far cry from its germination of which consisted of only a few bars.[2] The formation of simple ideas that are extensively developed is relatively consistent in Zappa’s musical output, but how this process is achieved in “Mo ‘n Herb’s Vacation” is particularly interesting. Before its performance by the London Symphony Orchestra in 1983, the piece underwent a number of transformations including written and performance revisions of parts and sections, re-writes and title changes. The first incarnation of the piece was written for clarinettist David Ocker.

> Frank started Mo ‘n Herb’s Vacation because I asked him to write a solo clarinet piece. He was dubious about the idea, but he did it—eventually it was called “Mo’s Vacation” but he didn’t like it so he added a simultaneous drum solo called “Herb’s Vacation”. He still wasn’t happy so he added 3 more clarinets and 4 bassoons, bass and a few other audio events. I guess it was still not big enough so he added two more movements for huge orchestra—becoming the “Mo ‘n Herb’s Vacation” on the LSO album.[3]

Clearly Zappa was not content with just a single instrument playing the melody and continued to develop the piece. Although introduced solely as “Mo’s Vacation”, a version consisting of marimba, electric bass and drums was performed by Zappa’s 1978 ECE.[4] This reduced version must have been an off-shoot of the larger scale version Zappa was working on, because a year

[1] Frank Zappa. 1983. ‘Non-Foods, Not The Moody Blues’, *Guitar Player*, 17(11), p. 117. The guitar solo from which the opening of “Mo ‘n Herb’s Vacation” is derived can be heard between (3:46-4:14) in the track “Cruisin’ For Burgers” from the album *Zappa in New York*. Frank Zappa. 1977. *Zappa in New York* [CD] USA: Rykodisc.
[2] In the orchestral, the small guitar fragment becomes the opening melody whereby it gradually deviates into a complex series of melodic figures and subsequently, a further two movements.
[3] alt.fan.frank-zappa. 1994-95. *The David Ocker Internet Interview*.
Available at: members.shaw.ca/mitb/ocker/#orch (Accessed: July 6 2015).
[4] A version of “Mo’s Vacation” was performed at the Mid-Hudson Center, Poughkeepsie, September 21, 1978 by Ed Mann – Marimba, Arthur Barrow – Bass and Vinnie Colaiuta – Drums.

earlier in a 1977 interview, Zappa discussed a piece called "Wøööøl" (pronounced "Woh-ooo-oh-luh") scored for 60 strings, four flutes, piccolo, woodwinds, eight french horns, four trumpets, three trombones, bass tuba and six percussionists.[5] "Wøööøl" was clearly part of "Mo 'n Herb's Vacation" because the title appears on the front cover page of the 1979 *Munchkin Edition* full orchestral score and functions therein as the title for the Second and Third Movements. Incidentally, "Wøööøl" is not listed as a title on the *London Symphony Orchestra Vol. 1* recording, instead the piece is divided into First, Second and Third Movements of "Mo 'n Herb's Vacation".[6] In addition, there is an accompanying narrative which is supposed to reflect questionable business tactics by Zappa's former manager Herb Cohen. At the time, Zappa's record company *Discreet* was co-owned by both Zappa and Cohen, however Cohen was negligent in paying Zappa his *Discreet* earnings, instead using the money for other non-related Zappa projects and a 'vacation' he took with Mo Ostin (once president of Warner Bros. Records) and their wives in Spain, hence "Mo 'n Herb's Vacation" (hereafter MnHV).[7,8]

[5] Rip, R. 1977. 'Frank Zappa – A Would-be Chemist Who Turned to Music', *The Valley News*.

[6] It was not uncommon for both ACE and ECE pieces to be given a variety of titles over a period of time. Titles for the same piece of music would be subject to change according to situations and events which occurred while Zappa was touring with his ECE or for any other reason deemed suitable to the composer. One example of a piece subject to multiple title changes from an evolving sequence of events and situations is "Let's Move To Cleveland". Zappa explained that he wrote the piece for violin and piano in 1968 but it was first performed as "Canard Du Jour" from remnant manuscript sketches, by the 1976 ECE. Thereafter it was performed as "Young and Monde" where "Monde" was a term used by Zappa's drummer at the time, Vinnie Colaiuta who referred to Ed Shaunessy the drummer from the *Tonight Show* as "Monde" because he wore a leisure suit and large medallion. By 1984, the title had changed to "Kreega Bundola" after a conversation Zappa had with band member, vocalist Ike Willis where they discussed the "fake native talk" found in Tarzan books. On that particular tour Zappa explained that he became tired of singing "Kreega Bundola" and eventually it transformed into "Let's Move To Cleveland" because of a receptive audience in Cleveland. (Simms *et a*l. 1990) (Slaven (1997) also discusses this process in his book *Electric Don Quixote: The Story of Frank Zappa*. London: Omnibus).

[7] At the time of writing, Hollinden is a Senior Lecturer in Music at the Jacob School of Music at Indiana University and the information he gives on this matter was provided during an interview he had with Howard Kaylan (ex-Frank Zappa vocalist) about Zappa's legal issues. United Mutations. Available at: http://www.united-mutations.com/c/herb_cohen.htm (Accessed: 5 April 2015).

[8] Zappa Programme Notes, LSO, 1983.

Technical Challenges in First Movement

In the "First Movement", the clarinet figures are spasmodic and interject relatively static accompaniment and as a result are strong focal points drawing the listener's attention closely to the figures which are underpinned by highly irregular rhythms. With large sudden leaps between register, the melodic figures inspire vast exploration of the clarinet with its flatulent tones in the lower register and hollow nasality in the middle to upper. Not an easy piece to navigate and execute, this was a test to push both the limits of the instrument and ability of the player. Technical challenges were not confined to the clarinet as Ed Mann (Zappa percussionist 1977-88) recalls the difficulties he experienced learning the piece:

> Technically, there's a lot of passages where the notes are going very fast, at thirty-second note speed, and there's interval jumps of ninths and elevenths all in a row, all up and down. A lot of things from a marimba point of view are almost impossible because you have to be in two places at once, operating like four hands. The way that I used to learn the piece was to take everything apart very slowly, learn one section at a time and gradually put it together. The feeling of it is two ways. There's kind of a certain legato feeling in a lot of the phrasing, but the pitches and the tonality are all torn apart. There's nothing cohesive. There's none of the strong tonalities that Frank would use in his anthems. It's all very disjointed. You can feel the anger in it… I love Frank, but I don't enjoy hearing that piece. The conflict is just built into the music, the way the phrases go, the tonalities and the rhythms."[9]

Zappa's predisposition to create complicated music and challenge the musician's aptitude was common practice. In the ECE version, Arthur Barrow recalls how Zappa wrote the bass part specifically to test his abilities, "[w]ith Mo's, I think part of it, at least, was a lean toward "This lick will be really hard. Let's see if Arthur can play it.""[10] However it is not just the musicians who were challenged, Bernard (2000) in discussing "MnHV" suggests that, "the absence of any clues as to how to organize the listening experience is quite bewildering… thematic/episodic materials…are not all that qualitatively distinct from one another…the moment-to-moment continuity…at points of great contrast, is quite weak in those of Zappa's pieces that follow the model of "unrelated themes in free succession.""[11] "MnHV" is unique among other Zappa orchestral pieces because of its length. One could make the supposition

[9] *T'Mershi Duween*. 1999. "Mann Alive!", Ed Mann interview by Evil Prince", Vol. 62.
[10] Arthur Barrow, email message to author, March 10 2015.
[11] Bernard, WJ. 2000. 'Listening to Zappa', *Contemporary Music Review* 18(4), pp. 63–103.

that the composer would have experienced challenges in attempting to sustain continuity in a seemingly predominant non-repeating form for such duration. This is perhaps why Bernard claims that the listening experience is fraught with difficulties. However, to substantiate this claim, it is important to analyse the piece closely to find out why problems may be inherent and perhaps if there is some concealed method of continuity that is not so readily observable.

Development and Variation of Pitch Classes [0,1,3,4] and [0,1,4,5]

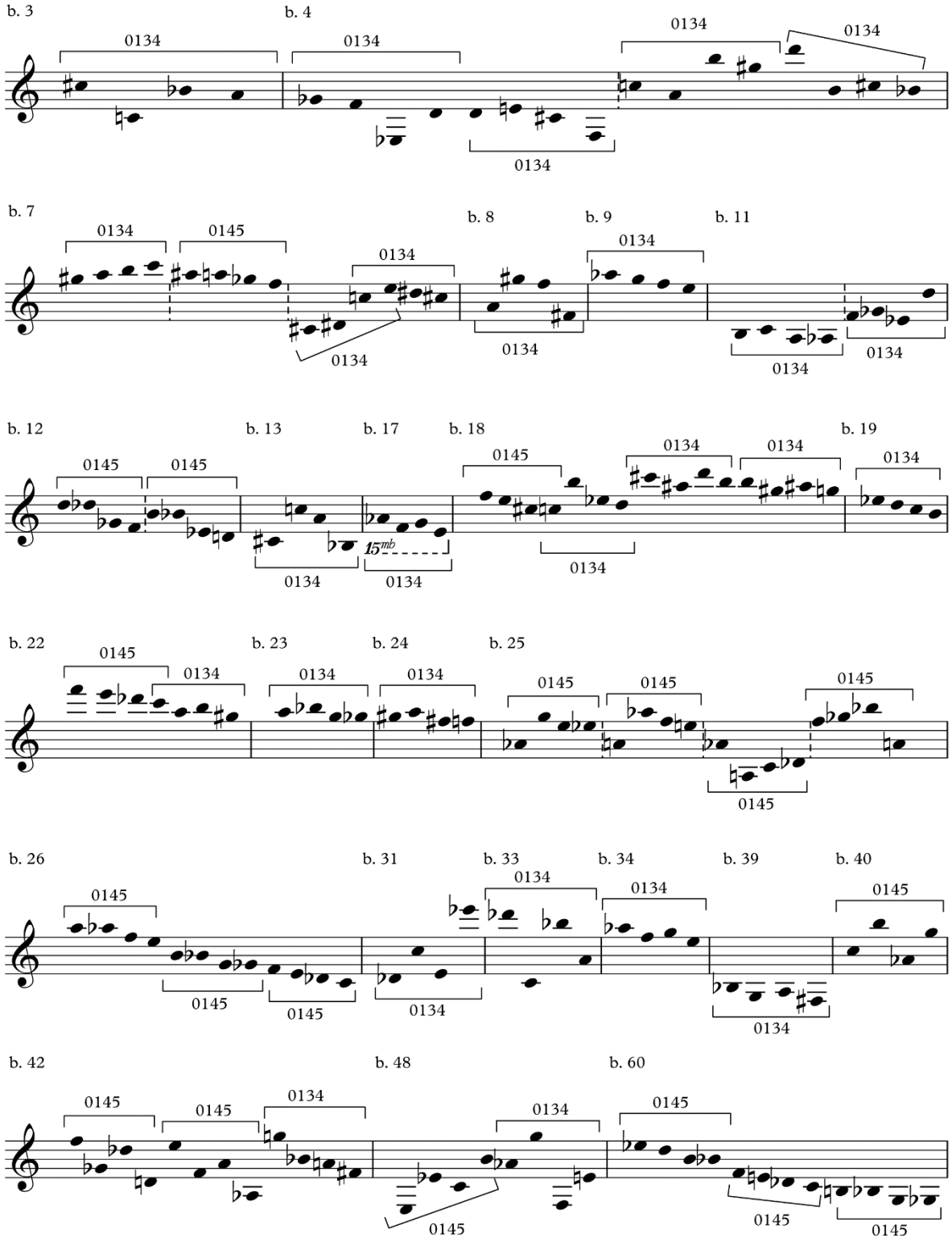
In the first part of the analysis I shall focus on the solo clarinet in the "First Movement" and illustrate connectivity between small cellular groups that can be reduced to the same pc sets. Although there are serial transformations, I shall not present sets as hierarchical in terms of sub or supersets, any hierarchy implied is purely statistical in that [0,1,3,4] and [0,1,4,5] are the most ubiquitous sets. Although Zappa had expressed interest in serial music, his method of serial integration was idiosyncratic, "[t]here's certain serial procedures that you can use…and I do that all the time, but, y'know, strictly serial music, that's not my realm... I gave up on that, because I'm not that kind of a structured guy."[12] While serial music is a compositional consideration, it is not an absolute; Zappa stated that "it's not mathematical; it's just formulaic… It's serial. But not 12-tone."[13] Zappa's is formulaic but in other ways, exemplified by constant rearrangement of small relational pitch cells and the deployment of recurring intervallic distances between notes. It is the development of these musical ideas as illustrated by the [0,1,3,4] and [0,1,4,5] sets that contribute to the continuity in the melodic figures throughout. Ultimately, the use of set theory within this context is merely a convenient way to illustrate the structural application of recurring permutated cellular events.

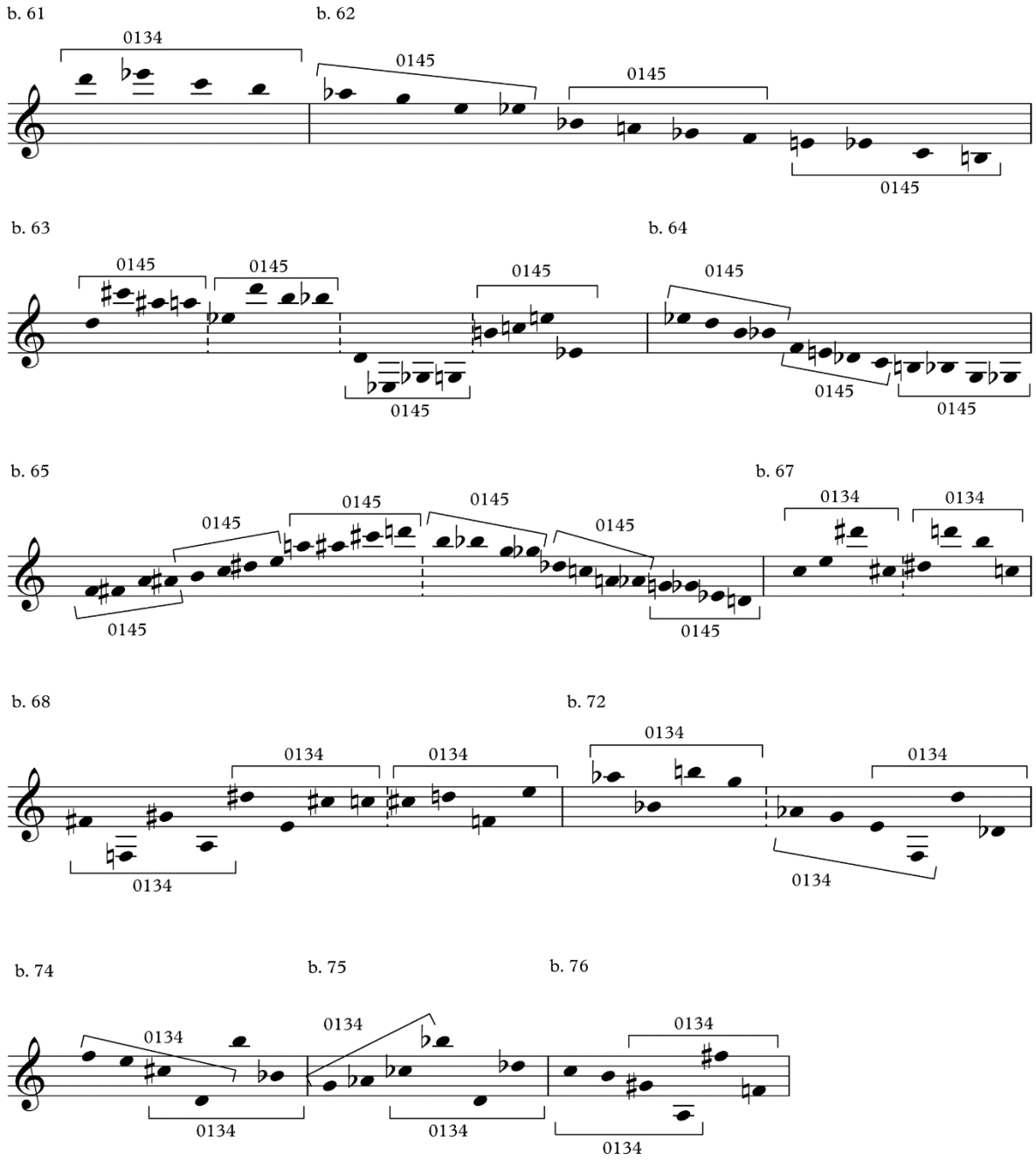
[12] Simms *et a*l. 1990.
[13] Dan, F. 1979. 'Interview with Frank Zappa', *Musician* 19, pp. 34-43.

The metrical positions of sets [0,1,3,4] and [0,1,4,5] vary between strong and weak. This impacts on segmentalisation because in weak metrical positions the analytical compartmentalisation of the set has the potential to appear disruptive to the overall phrase from which it is extracted and may indeed suggest an alternative reading. I have considered this problem but maintain that notwithstanding the segmentalisation in weak metrical positions, the sets in question illustrate a stronger structural role than that which could be yielded from simply analysing each successive phrase in its entirety. The latter approach can only demonstrate qualitative similarities or dissimilarities but provide no specifics as to the quantitative values. I am interested in the qualitative but for now shall reserve that investigation until later on in the analysis. By observing the aforementioned sets within either strong or weak metrical positions, we can establish stronger continuity between each figure and illustrate more clearly why they correlate. This type of deconstruction enables one to ascertain the structural aspects which make the music sound a certain way and to establish a different level of continuity which although appears disjunctive is also illuminating. Of course there are other levels of continuity which I shall also discuss. Another consideration for uneven segmentalisation are the irregular rhythms of each figure. The rhythms accelerate and decelerate within relatively short time durations implying the speech influenced rhythms Zappa was so fond of.[14] This level of rhythmic irregularity compounds the inherent difficulty of segmentalisation in this piece, and to some extent allows for the occasional uneven dissection. When the sets fall within a weak metrical position they can be seen to function as supporting connective devices for other prominent features. At these points, the sets are generally engaged in partial or full symmetry, transpositions of prior iterations, octave displacement and *isomelism*. Both sets are encountered frequently and so I have decided to elevate them to the status of one of the strongest correlative structures in the melodic figures overall. This choice is based on the statistical evidence as well

[14] Rosen, S. 1977. 'Frank Zappa', *Guitar Player*, 11(1), pp. 24-50.

as the audible suggestiveness of the sets; statistical in that it is more ubiquitous and suggestive in determining why the melodic figures sound a certain way. All [0,1,3,4] and [0,1,4,5] sets are shown in order of appearance in (ex. 6.1) The dashed bar lines indicate that sets are in the same bar but are not consecutive, indicating other melodic activity which for the sake of clarity is not shown.


b. 3
0134
b. 4
0134
0134
0134
0134
b. 7
0134
0145
0134
0134
b. 8
0134
b. 9
0134
b. 11
0134
0134
b. 12
0145
0145
b. 13
0134
b. 17
15mb
0134
b. 18
0145
0134
0134
0134
b. 19
0134
b. 22
0145
0134
b. 23
0134
b. 24
0134
b. 25
0145
0145
0145
0145
b. 26
0145
0145
0145
b. 31
0134
b. 33
0134
b. 34
0134
b. 39
0134
b. 40
0145
b. 42
0145
0145
0134
b. 48
0145
0134
b. 60
0145
0145
0145



EXAMPLE 6.1. Permutations of sets [0,1,3,4] and [0,1,4,5].

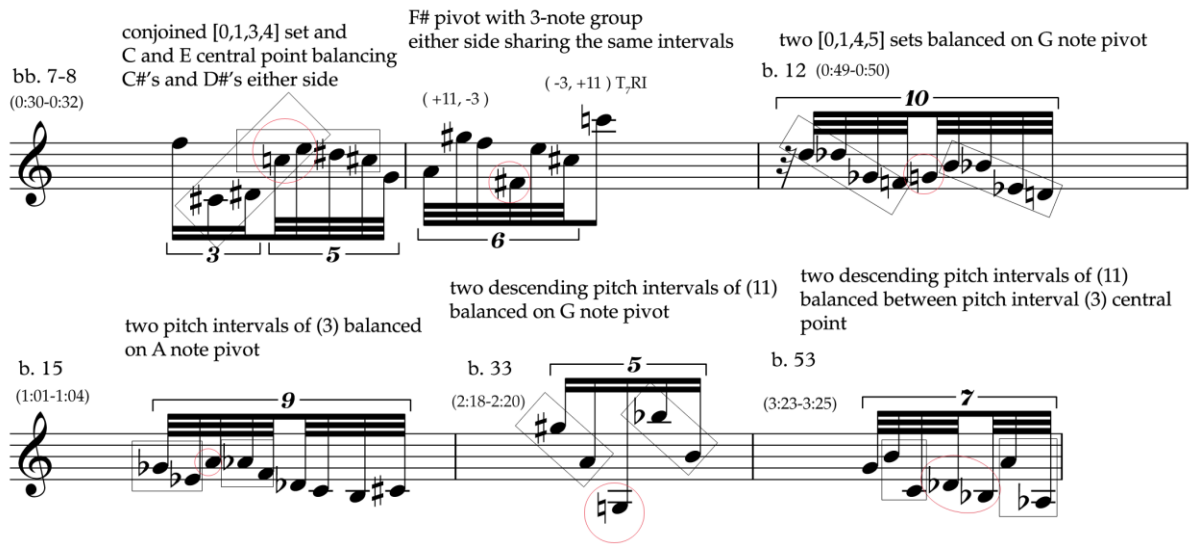
Each intervallic permutation of the [0,1,3,4] and [0,1,4,5] sets in (ex. 6.2) is presented in chronological order, read downwards from left to right. Some of the set variants outline jagged contours with large intervallic leaps between notes. These rapid shifts between high and low register notes create a kind of fragmentation which is suggestive of the pointillism technique except here the effect is confined to one instrument. Serial transformations are in use, for

example in the [0,1,3,4] set, (-1, -2, -1) is an inversion of (+1, +2, +1), and (-11, +9, -1) generates a retrograde inversion in the form of (+1, -9, +11). There are equivalent examples where the sets share the same pitch classes but are performed in different registers such as (-3, +2, -3), (-15, +2, -3), (-3, +14, -3), with the latter two permutations containing octave displacements in the first (-15) and second (+14) notes of the sets respectively. This process occurs again in the following intervals, (+11, -8, +23), (+11, -20, +11) and (-11, +9, -1), (-11, +21, -13). It appears that these are the kind of serial operations Zappa infers when discussing serial music, and points to a looser application of the technique.

[0,1,3,4] Permutations			
(-13, +10, -1)	(+4, -1, -2)	(-3, +4, -3)	(-11, +9, -1)
(-1, -14, +11)	(+11, -3, -11)	(+11, -8, +23)	(+1, -9, +11)
(+2, -3, -8)	(-1, -2, -1)	(-25, +22, -13)	(-10, +13, -4)
(-3, +14, -3)	(+1, -3, -1)	(-9, -1, -3)	(-1, -3, -11)
(-15, +2, -3)	(+1, -3, +11)	(+11, -26, +11)	(-11, +21, -13)
(+1, +2, +1)	(-3, +2, -3)	(+4, +11, -14)	(+1, +3, +11)
(+2, +9, +4)	(+11, -8, -1)	(-13, +15, -11)	(+11, -20, +11)
[0,1,4,5] Permutations			
(-1, -3, -1)	(-11, +3, +1)	(-11, +7, -11)	(+1, +3, +1)
(-1, -7, -1)	(+1, +4, -13)	(-11, +4, -13)	
(+11, -3, -1)	(+11, -15, +11)	(+11, -3, +11)	

EXAMPLE 6.2. Tabular presentation of permutated sets [0,1,3,4] and [0,1,4,5] in order of appearance read downwards from left to right.

Pivots and Balances



EXAMPLE 6.3. Pivots and balances.

As mentioned above, where sets [0,1,3,4] and [0,1,4,5] are not in strong metrical positions, they will function as either complimentary to other note groups or as connective devices between phrases which are bonded by other means. This again demonstrates the necessary analytical procedure of revealing more than one association for any given segment. For example, [0,1,3,4] and [0,1,4,5] sets are prominent structural features but can also be identified as contributory factors to larger phrases or may appear as conjoined sets exhibiting sequential formations.[15] In (ex. 6.3) bb. 7-8 display some of these characteristics. Embedded within the phrase on the fourth beat of b. 7 we can observe the following array of notes, (C#, D#, C, E, D#, C#). Because the notes are arranged in this way, a conjunction of two [0,1,3,4] sets is revealed where essentially only 4 different notes (C#, D#, C, E) are involved. The sequence, (C#, D#, C, E, D#, C#) also produces a pivotal point where the notes (C) and (E) are central to the (C#'s) and (D#'s) on each side. In b. 8 there is a demisemiquaver sextuplet linked to a

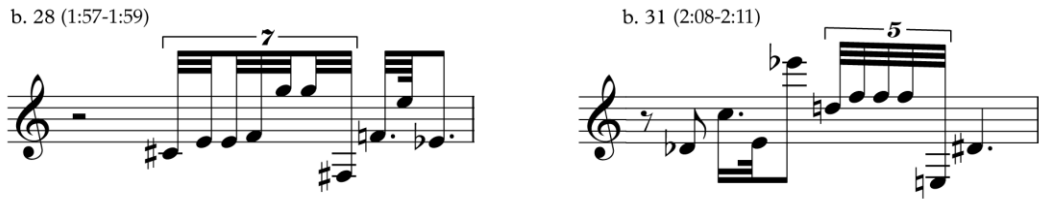
[15] This is not to infer that sets [0,1,3,4] and [0,1,4,5] are necessarily subsets of larger sets, as already mentioned at the outset of this chapter, it is not the intention of this analysis to make those type of correlation for reasons previously discussed.

semiquaver occupying the duration of a crotchet beat. The figure contains 7 notes which facilitates a pivot point (F#) on which either side is balanced two 3-note groups (A, G#, F) and (E, C#, C) which are related by transposed retrograde inversion, (+11, -3) and (-3, +11). In b. 12, a similar occurrence generates a point of axis between two [0,1,4,5] sets. A set of 10 demisemiquavers falls on the first beat with the first demisemiquaver value presented as a rest leaving nine notes which allow for a pivot with four notes each side of it. The fifth note in the row of nine is G and acts as the pivot between the two [0,1,4,5] sets which are (D, Db, Gb, F) and (B, Bb, Eb, D). A point of axis can also be central to specific intervals as in b. 15 where on beat 3, the first 5 notes of the nonuplet generate two pitch intervals of (3), (Gb-Eb and Ab, F) balanced between the central (A) note. Another example is on beat 3 of b. 33 where the low (G) in the quintuplet figure is pivotal to the two descending pitch intervals of (11), (G#-A and Bb-B). The septuplet figure on beat 3 of b. 53 produces two descending pitch intervals of (11) (B-C and A-Ab) on opposite sides of ic3 (Db-Bb). Unlike the pc sets, these latter examples show a degree of intervallic balance which act as momentary compliments to the more intervallically diverse phrases.

Intervallic Manipulation

While both [0,1,3,4] and [0,1,4,5] sets are the strongest contenders for continuity among the clarinet figures, other forms of continuity also contribute to the overall structure. To a certain extent we have already addressed some of these other forms in our set analysis such as the use of large successive intervallic leaps. It is these disjunctive intervallic successions that generate a sense of fragmentation within the melodic figures and since this technique is not exclusive to the aforementioned sets, I shall now expand on this and illustrate some further examples. Sudden shifts in register are quite common in the clarinet and the angularity of the lines is often accelerated. There are wide leaps of an octave and above, however at times these can be over

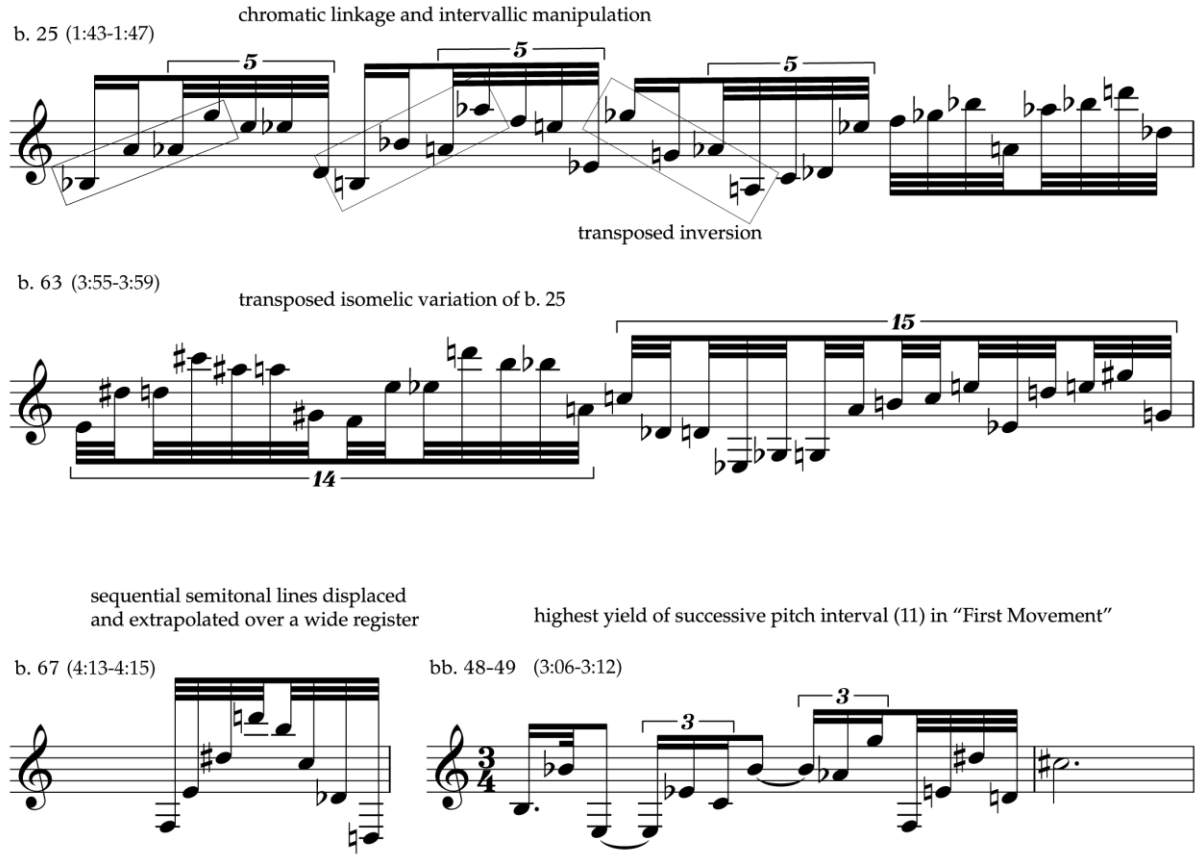
two octaves moving in rapid succession. In b. 28, there is a leap from a high (G) to a low (F#) over two octaves below, and is caught among a fleeting demisemiquaver septuplet figure. A similar occurrence is found in b. 31 where the last iteration of the repeated (F) note in the demisemiquaver quintuplet rapidly descends to a low (E) more than two octaves below. These intervallic leaps at accelerated speeds are probably what Ed Mann is referring to in the above quotation where he states, "you have to be in two places at once". Clearly these figures require a high level of virtuosity which necessitate the most strategic navigational processes of the instrument. One has to be concerned with a number of factors in the precise execution of these melodic lines; complex rhythms, tempo, articulations, dynamics and large intervallic leaps between notes. A simultaneity of complex operations which no doubt would have challenged the musician.



EXAMPLE 6.4. Examples of disjunctive intervallic successions.

Furthering our discussion on intervals, another interesting technique Zappa employs is chromatic links. For instance, if we reduce some of the wide intervallic leaps that appear in b. 25 to within an octave, it is possible to see 4-note successions of chromatic notes. What is interesting here is how Zappa links a simple chromatic series of notes using intervallic manipulation. In b. 25, the first 4 notes on each crotchet beat shows this interesting linkage where on the first and second beats, the (Bb, A, Ab, G) and (B, Bb, A, Ab) actually ascend by pitch interval (11), then descend by (1) and again ascend by (11). The first 4 notes on the third beat of the bar proceed as a pitch interval (11) descent, (1) ascent and (11) descent, essentially

a transposed inversion of the prior iteration (ex. 6.5). Not only is b. 25 exemplary of this type of intervallic manipulation but also of the most elaborate example of *isomelism* in the first movement of the piece. The 29 notes in b. 25 are formed from 3 sets of two semiquavers (2) and a demisemiquaver quintuplet (5) = 3 x 7 (= 21 notes) + 8 demisemiquavers (= 8 notes), 21 + 8 = 29, a number which is subdivided in b. 63 by one group of 14 and another of 15 demisemiquavers both to be played in the time of 16 respectively. Chromatic linkage via intervallic manipulation also occurs at b. 67 where the notes (F, E, D#, D) and (B, C, Db, D) are extrapolated over a 3 octave range. If read sequentially regardless of the fixed distances in pitch space, (F, E, D#, D) appear to descend chromatically, however the manner in which Zappa has exploited this sequence is an ascending pattern which as a result of register diversity detracts from the essentially close semitonal relationship between the notes. The same procedure is evident with the next group of notes, but where the reduction of these notes reveals ascension as in (B, C, Db, D), the figure proper descends by pitch intervals of (11). Pitch interval links of (11) are consistently generative throughout with the process reaching the highest yield of successive pitch intervals of (11) in bb. 48-49. It is as if the whole phrase is entangled in a network of this particular interval. This is a common creative device employed by Zappa across many of his musical works and we have seen many instances of this in the previous analyses, however, it seems to be exhaustive in the “First Movement”.



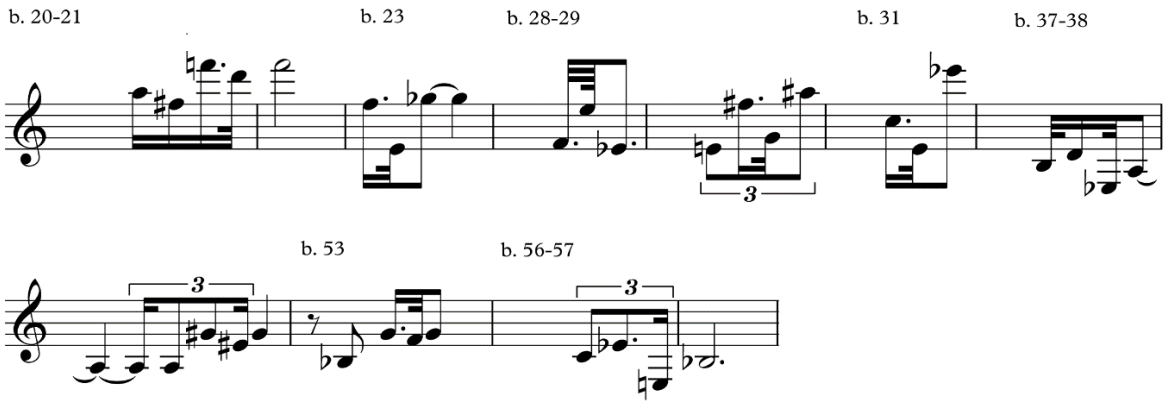
EXAMPLE 6.5. Chromatic Linkage and Intervallic Manipulation.

Periodic Signs

In the endings of some of the clarinet figures, small detached figures that share similar rhythmic and melodic characteristics are stated. Each penultimate note in the examples collapses onto the final much like an acciaccatura and acts as a periodic sign.[16] Although the final three notes of each figure do not share the same intervallic distance, the rhythm and contour of each is strong enough to constitute the correlation. This is because the relative simplicity of the rhythms and the general contour in each shows greater contrast against the erratic nature of the

[16] This term has been adapted from *Modern Music and After* (2010) by Paul Griffiths wherein describing the "recurrent gesture" in Boulez's "Sonatina", Griffiths refers to it as less of a theme and more of a "periodic signal". This term seems appropriate at this juncture of the analysis because of the nature in which a "recurrent gesture" is expressed in "MnHV".

rhythm elsewhere. In addition, these figures are attached to larger ones and because they signal the closure of each one are therefore more prominent as periodic signs.



EXAMPLE 6.6. Periodic Signs.

Chordal Analysis

Apart from the introduction, chords in "MnHV – First Movement" are interjectory and for the most part provide occasional harmonic support for the melodic figures. I use "harmonic support" tentatively as it is not support in the traditional sense of harmony whereby a melody is derived from the contents of the accompanying chord. As identified in other chromatic pieces ("Pedro's Dowry" and "Bob in Dacron") there is very little in the way of chord and melody correlations, often the harmony bears no relation to the melody whatsoever. What we do find are highly dissonant chords that are assembled from predetermined intervals and used in developmental and varied ways. Although it is difficult to discern the exactitude of chord and melodic relationships, it is possible to approximate the conceptual intent. Zappa referred to harmony as a "climate", that a melody could be played against, the chord is essentially viewed as a harmonic climate that generates a certain type of sound.[17] In "MnHV – First Movement", this concept goes beyond the actual notes and implies an overarching importance of textural

[17] Schneckloth, T. 1978. 'Garni Du Jour, Lizard King Poetry And Slime', *Down Beat*, 45(10), pp. 15-17, 44-46.

qualities and psychoacoustic effects.[18] Zappa explained the concept of the "harmonic climate" in relation to both his compositions and guitar solos using the analogy of a scene in a movie, "you have a chord that tells you where your harmonic climate is – where the event is taking place. The chord is like the establishing shot in a movie – where you see the exterior of the building, or the alley with the garbage cans. It tells you where it's happening. Then the action takes place."[19] While it is an interesting analogy, it is also subjective, and although it indicates an alternative viewpoint of how harmony can function with a given melody, it does not provide enough clues as to why specific notes are chosen for the chordal and melodic simultaneities in the chromatic pieces. A detailed discourse beyond the conceptual is difficult to engage in because no specifics were outlined by Zappa, at least not in the way he described the construction of some of the chords from the *CB*, which although still presents analytical challenges is comparatively more revealing. While Zappa expressed in no uncertain terms his dislike for "common practices" in chord construction and progressions, it seems he was not as explicit in describing his method for choosing specific notes in these non-correlative events, as David Ocker explains:

> [H]e did use symbols in lead sheets. Not that they always made sense to me. I could look at the symbols and scratch my head as to why or how they were supposed to fit with the melody note - usually I didn't see any relationship. Once, we had a conversation where I mentioned that some chords didn't fit the melody. I got the impression that to him chords were chords and melody was melody and how they fit together was his business, something to be creatively explored. Gail was there and later she said (something like) "He doesn't talk about that stuff with anyone else." Well, in truth, he didn't talk about it with me very often either.[20]

---

[18] Zappa was fully aware of the effects certain sounds, dynamics and articulations could have on the listener and the manipulation of those factors was consistently employed throughout his body of work. An exaggerated example of the potential force of sound used as a device by Zappa to evoke a psychological and physiological state was during a riot at a 1968 Mothers of Invention concert in Berlin: "Toward the end of the show they figured this is their last chance to get the audience to go with them, so the student leader leaps onto the stage and grabs the microphone and starts babbling away in German. So in order to keep him from doing what he was going to do, I gave Don Preston instructions to put our electronic organ through a fuzz tone and put both arms on the keyboard. You know what that sounds like – that's an ugly fucking sound…I made my guitar feedback, and it's just me and Preston making ugly noises and this guy going like that [pantomimes screaming]." Lyons, S. and Friedman, B. (1987, p. 67).
Although I will not be exploring the psychoacoustic realm to any great extent, I shall clarify in the "Chord" section of this analysis, the reason I have referred to "psychoacoustic effects" by citing Zappa's contextualisation of psychoacoustic manipulation within his music specifically.

[19] Schneckloth (1978).

[20] David Ocker, email message to author, March 18th 2015.

With relatively limited information on the specificity of chord and melodic relationships, one can only speculate on the process. But since Zappa explicated the process in other ways, it is possible to appropriate how the chords in "MnHV – First Movement" are bound to this. The large majority of chords in the piece are dissonant, but there are some which are more dissonant than others. For example, D(1, 3, 1, 1, 2, 1) and D(9, 1, 1, 3, 1, 2) in b. 9 create a sound that shrills and agitates, 'twinging' the ears thus generating a certain physiological response, a point I shall discuss later on. Generally, the characteristic quality of the chords are a direct result of instrumentation, register, dynamics, close knit and wide intervallic structure. Proof that not only was Zappa interested in the construction of chords but also the various methods of expression and articulation by which to enhance them. The strong frequency perturbations in the aural generated by the aforementioned two chords is exemplary of the kind of listening experience Zappa attributed to Varèse: "Varèse's harmonic concept doesn't resemble anybody else's. He creates substances rather than chords. He uses chemical concepts. The type of tension his harmonies create are like isotopic combinations. Some stable. Some unstable – highly volatile and about to explode. It gets into the field of psychoacoustics, really."[21] The underlying principal here is that for Zappa non-relational chords and melodies operate under the premise of two areas which are texture and psychoacoustic; texture as in the registral placement of notes and to which instruments those notes are assigned and psychoacoustic; the psychological and physiological responses. Zappa continuously exaggerated musical norms to convey extra musical information and "MnHV – First Movement" is far from exempt of this process.

> There are certain harmonic climates that you can build. There are certain notes of a scale that you can play within a harmonic climate to "wreak pathos", and it's very predictable...the timbre is involved, too. And the amplitude is involved… There are certain frequencies that affect your body and make you do things…those frequencies too are conveying information that transcends the musical information. They're being perceived physiologically by parts of the body in ways other than just what your ear is telling you about music…The way sound works and the things that it can do to you is fascinating. I've done research into this, and have come up with some things I've used in my work.[22]

[21] Zuck (1984, p. 16).
[22] Lyons, S. and Friedman, B. (1987, p. 68).

If we now analyse the textural aspects of the chords in "MnHV – First Movement", we notice interesting dynamics and articulations are applied to specific instrument groups to project extra musical meaning. The implication is that there is construction of a certain type of 'musical fabric' that is beyond note correlations between chords and melody, and is more to do with the combination of certain frequencies "conveying information that transcends the musical information." An example of this is in the accompanying and interjectory low register line of the contra-bassoon at b. 10. The line is to be played in a "*grotesque*" manner, and the contra-bassoon is the ideal choice for this as it is an instrument amply capable of producing 'sinister flatulent tones'. The last note of this brief "*grotesque*" interjection lands on the bottom note of a low register dense chord, D(9, 1, 1, 3, 1, 2). The closeness of the intervals between the notes and the fact that the chord is not only in the low register but played by contra-bassoon, 3 bassoons, bass clarinet and two clarinets creates a thick dense texture. It therefore goes beyond the importance of chordal and melodic note correlations, it is textural, where here the effect is likened to something menacing or untoward. Another example is the textural diversity of the highest yielding chord of the piece, D(1, 2, 5, 1, T, 9) which is presented in various dynamic and articulatory incarnations. It makes its first appearance at b. 22 sustained at *fortissimo* with a gradual *decrescendo* and then at b. 25 it is struck and released abruptly three times. At b. 55 it is subject to a consecutive increase and decrease in loudness creating a pulsating tension and release. Aside from the textural considerations, multiple usage of the same source material as exemplified here by D(1, 2, 5, 1, T, 9) is a good example of maximising resources too, a process that can be attributed to other techniques such as *isomelism* for example. If we return to b. 9, the bassoons and clarinets are engaged in a *tenuto smorzando* where each instrument player must simultaneously bend their respective note. The two chords at this particular point are D(1, 3, 1, 1, 2, 1) and D(9, 1, 1, 3, 1, 2), chords already discussed above in relation to their resultant shrill and agitation. The manner in which they are stated is comedic, by that I mean

they are implicative of a kind of slapstick sound effect of something being misshapen or bent out of proportion but at the same time resembling an Ahooga car horn.[23] Meanwhile, the clarinet proceeds to execute a melodic figure suggestive of a Middle Eastern influence. It is the inference of such contrasting elements that makes Zappa's music so fascinating. His skill of effortlessly referencing diverse musical resources is exemplified by the potential disjunction of those choices that are somehow brought together into a coherent compositional whole. Moreover, this dichotomy indicates that for Zappa almost nothing was considered sacred enough to not be subjected to some kind of "humor something"[24] in which to convey an extra-musical element, even in "serious classical music". It also points to the aphorism Zappa divulged in interviews which was first referred to in his book *The Real Frank Zappa Book*, "Anything, Any Time, Anywhere - for No Reason at All."[25] Where else could one experience a piece of music written about untrustworthy managers with a solo clarinet emulating Middle Eastern influenced melodies and other orchestral instruments resembling Ahooga car horns?

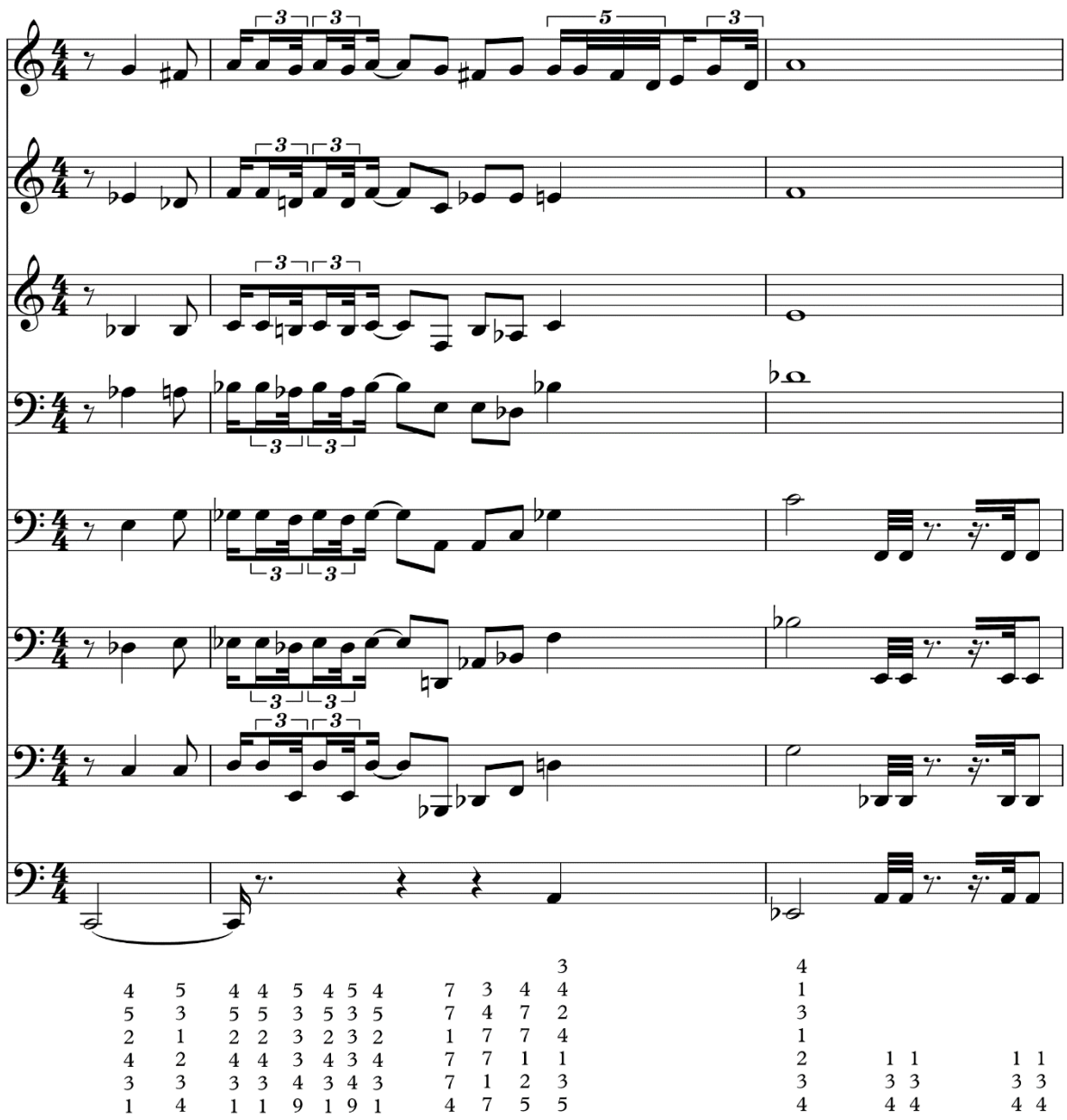
So far, in the analysis of chords within "MnHV – First Movement", attention has been focused on non-relational chordal and melodic instantiations and the textural effects thereof. I shall now illustrate the developmental and varied strategies employed with the chords. In the first 3 bars, the opening melodic figure is harmonised using the alternating form observed in other pieces, which is the consecutive exchange between two fixed intervallic densities. An example of this is the first chord of the piece, D(1, 3, 4, 2, 5, 4), a Minor Lydian (2) chord which, with the exception of the second chord D(4, 3, 2, 1, 3, 5), alternates with an octatonic chord D(9, 4, 3, 3, 3, 5). The alternation is followed by D(4, 7, 7, 1, 7, 7), a confirmed member of the *CB* as it is one of the chords Zappa demonstrated at the piano in an interview about *CB*

[23] Zappa referred to the "old-time car horn [that goes] "Ah-roooo-gah!"" as amusing and that along with other sound effects was something he would use in his arrangements. Zappa & Occhiogrosso (1989, p. 168).
[24] Ibid., p. 171. Zappa coins the phrase "humor something" in reference to how timbre can generate humour.
[25] Ibid., p. 163. "Anything, Any Time, Anywhere - for No Reason at All" could also be attributed to the reappearance of the opening clarinet figure of "MnHV – FM" in the track "Fembot In A Wet T-Shirt" between (2:11-2:33) from the album *Joe's Garage* 1979.

harmony.[26] This particular chord also appears in “Bob in Dacron”, “Sad Jane” and “Sinister Footwear”, so it is an important structure also because of its recurrence across different pieces. The D(5, 2, 1, 7, 7, 4) in b. 2 is a chord that appears ten times in “BID” and so indicates that this chord probably belonged to the *CB* repertoire at some stage. In addition, the smaller density in b. 3 D(4, 3, 1) appears in “Sad Jane” and could also be considered to be part of the *CB* as a result of its repetition here.

[26] Forte (1979, p. 41).

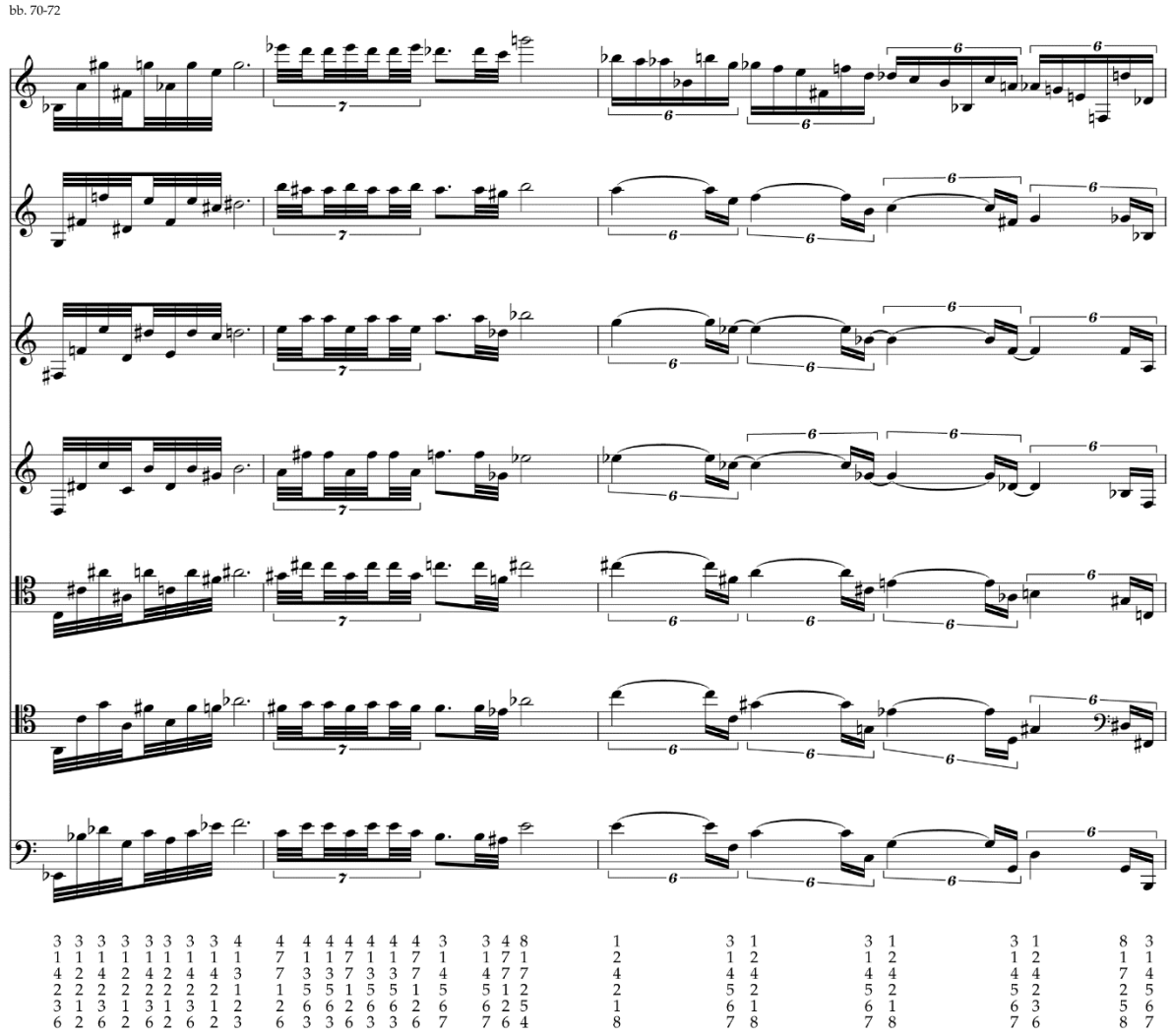
bb. 1-3



EXAMPLE 6.7. Opening Bars.

Proceeding through the piece and there are various examples of the alternating form, usually occurring towards the end of melodic figures. The most elaborate example is from bb. 70-72 where in b. 70, D(6, 3, 2, 4, 1, 3) and D(2, 1, 2, 2, 1, 3)[27] flick back and forth before resting momentarily on D(3, 2, 1, 3, 1, 4). All these densities are scalar derived from the Minor Lydian (1) scale apart from D(3, 2, 1, 3, 1, 4) which is a Minor Lydian (2) derivative. D(2, 1, 2, 2, 1, 3) would be categorised as a *CB* member as it also appears in "The Perfect Stranger", "Sinister Footwear" and "Bob in Dacron". In b. 71, the demisemiquaver septuplet figure is a staggered alternating form because of the note reiterations in the melody, and comprises D(6, 2, 1, 7, 7, 4) and D(3, 6, 5, 3, 1, 4), both derived from the Minor Lydian (2) scale. As in "BID" where scalar derived densities are immediately followed by chromatic ones, a similar process is in operation here too. In b. 72, the melodic figures descend in consecutive sextuplets with the alternating densities interjecting on the first and last notes of each sextuplet figure. D(8, 1, 2, 4, 2, 1) is octatonic and is proceeded by a chromatic collection made up of D(7, 6, 5, 4, 1, 3). Clearly the Minor Lydian scale was a particularly important scalar resource for Zappa primarily because of its ubiquity in various forms throughout the selected orchestral pieces herein.

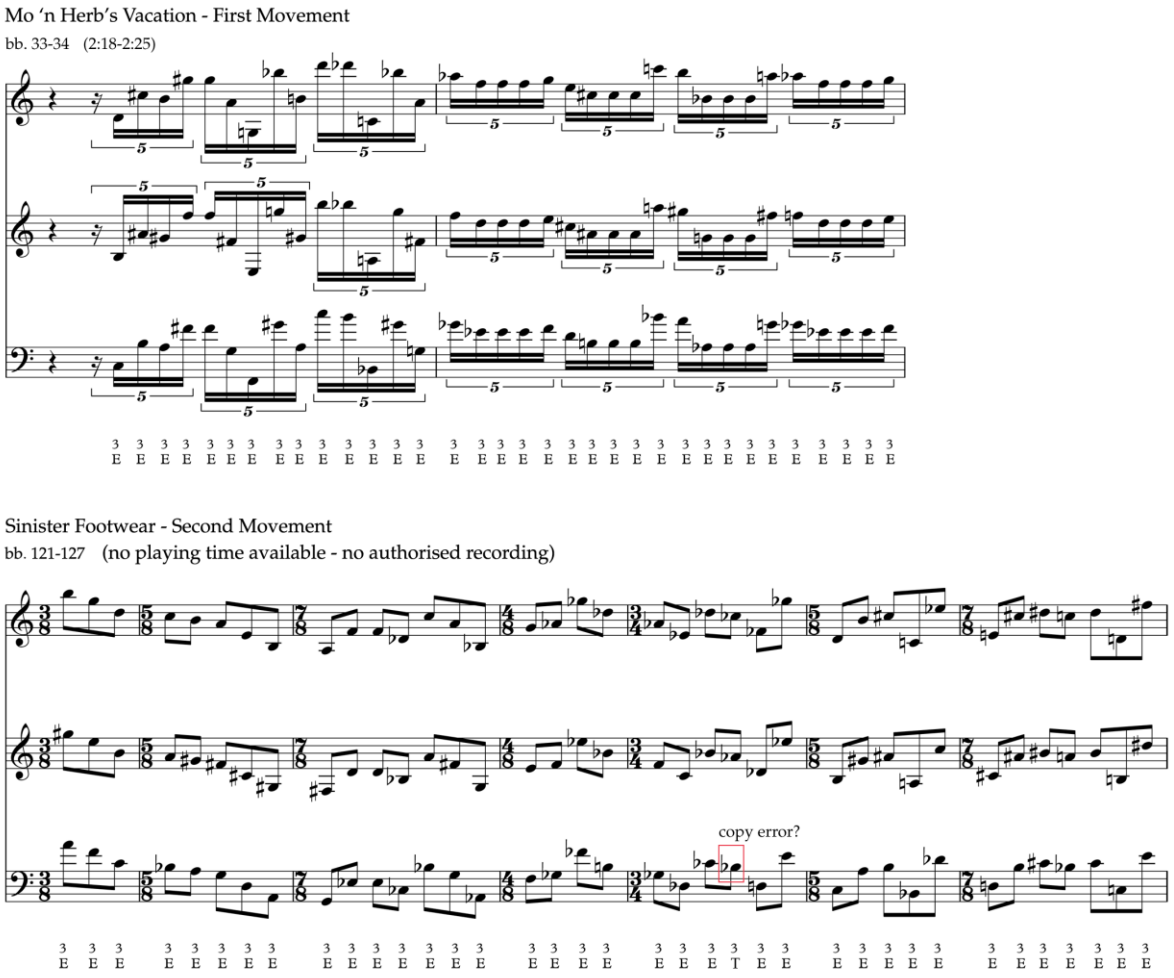
[27] D(2, 1, 2, 2, 1, 3) in b. 70 alternates in a consistent manner but on the third instantiation which is essentially the vertical structure based on the 6th note of the demisemiquaver figure there is a copying error. However I have left the error as it appears in the score but should like to make the point that in the bass clarinet (4th stave down from top), the 6th note in question appears as a (D#), if it were so then it would create a D(2, 1, 3, 1, 1, 3). Based on the continuum of this particular phrase it would seem improbable that this density would interrupt it in that way and so I have chosen to analyse that particular density as containing a (D) natural instead of a (D#).



EXAMPLE 6.8. Fixed Intervallic Alternating Forms in Chords.

Like “Bob in Dacron”, “MnHV” is exemplary of the transitory phase of former methods of chord construction and the subsequent practice of *CB* theory. Although *CB* usage is evident in “MnHV” it seems to be used sporadically and does not represent the same level of implementation as in later orchestral works such as “The Perfect Stranger”, “Sinister Footwear” and “Duprees Paradise” for example. The oscillations between scalar resourced and chromatic structured chords indicates this transition. However, this deduction, even though based on statistical evidence and chronological observations, should also be precautionary because we cannot know for absolutely sure about the compositional decisions taken at the time of writing. One has to allow a certain amount of latitude for artistic decisions that were based on what

sounded good to the composer. Furthermore, some of these compositions were written over a period of years and so as new developments occurred they would be integrated at various points within the composition depending on what point in time Zappa was working on them. In bb. 33-34, consecutive semiquaver quintuplets are tracked by 3-note chords wherein the notes are spaced at fixed distances. The chord is a D(E, 3) which is an uneven balance of intervals with a large space between the first and second notes and a relatively small space between the second and third. The density played in succession creates a strained sound, it is wide but constricted at the same time. The same density is used in a similar way in "Sinister Footwear" and I have presented the two in (ex. 6.9) for comparison and to illustrate the strong likelihood that this particular density is derived from the *CB*.



EXAMPLE 6.9. "Mo 'n Herb's Vacation" and "Sinister Footwear" Comparison of D(E, 3).

Disparity between Score and Recording

The 1979 *Munchkin Edition* score contains music written for instruments which do not appear in the LSO recording. Written in the score is music for bells, marimba and vibraphone which take turn in tracking the melodic figures in the clarinet. The omission of those instruments is left to speculation: were those parts performed at the recording and edited out later on? Did Zappa, at the rehearsing stage decide to take them out? Was it an orchestration decision or based on unsatisfactory performance of the parts? Nevertheless, the piece functions well without those instruments allowing the clarinet to instil a sense of space, an instrument in isolation that is occasionally assisted by other orchestral colours. The electric bass in the score is not in the recording with most of its parts executed by bassoons instead. The drums are played in the introductory bars, but even though the drum part is written for the entire piece, from bb. 3-25 they do not appear in the recording. The drums enter at b. 26 and proceed to support the clarinet figures until b. 59 just before the successive groups of 17-note demisemiquavers. It is quite remarkable how Zappa manages to build and maintain tension as the piece reaches its climax by omitting the drums from that point onwards. Trombones and a tuba are also written in the score from b. 32, but the only point where we hear them is for 3 bars between b. 38-40. This is a good example of resourcefulness in adding colour at interjectory points, the same occurs with the cellos and contrabass between bb. 43-49 with simple articulations to support surface activity.

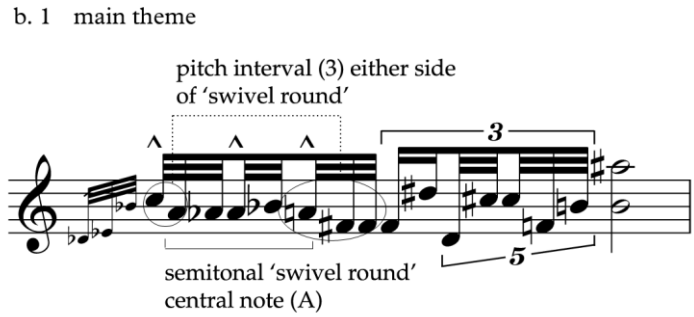
Second Movement - The Theme

The theme for the "Second Movement" of "MnHV" was also conceived from a guitar lick. This time it was part of a solo Zappa played during the 1978 ECE performance of "The Little House I Used To Live In".[28] There is however a difference between the two movements in how the guitar solos are used. In the first, the solo extract is only used for the introduction with little reference to it thereafter. In the second, it plays a much more significant role and is used consistently as a point of reference throughout. The method of variation and development of this guitar lick (theme) bears all the usual hallmarks of Zappa's style of writing. The theme is spread out to different instruments and is in a constant state of evolution with a variety of isomelic variations and fragmentations. The movement is also relatively sparse with long periods of static dissonant chords and interjectory percussion reminiscent of Varèse.

The following observations are statistical and ultimately illustrative; statistical in the sense of the number of instantiations of the theme and illustrative in the substantiality of thematic continuity. The latter being an important point in relation to Bernard's position on "MnHV" in that it follows the model of "unrelated themes in free succession." The theme is one bar in length with most activity taking place on beats 1 and 2 with a sustained dyad across beats 3 and 4. It is preceded with an acciaccatura made up of three notes followed by the first part of the theme where the intervals are relatively close together. On the second beat the theme opens up with larger interval distances which then come to rest on beat three as a dyad made up of the notes (B) and (A#) separated by pitch interval (11). Although in the score the introductory theme is written to be played once, in the recording it is played twice, first as written and then again an octave higher. It is played in an antagonistic manner with emphasis on the jaggedness of the line by a *fortissimo* violin accompanied by contrasting pianissimo strings. For practical purposes I have divided the theme into two fragments so that recurrences

[28] Zappa (1983, p. 117).

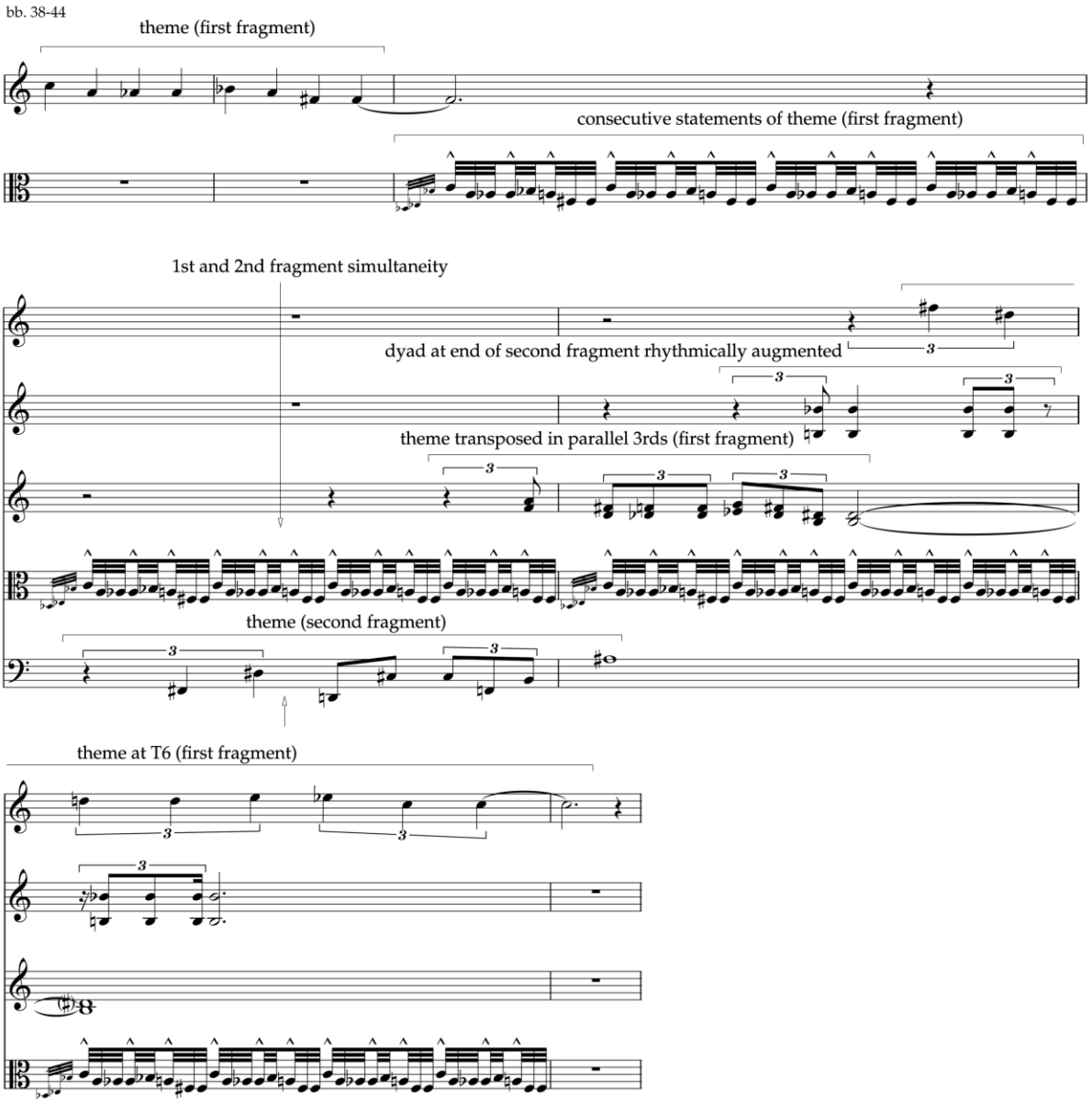
can be referred to fragmentally since this is how the theme is in fact recapitulated. In most cases it is just the first fragment that is developed and varied and behaves in much the same way as fragments found in previous analyses which fall under the category of fragmental repetition. The first fragment of the theme on beat one exhibits a pivotal formation, where the notes as characterised by the pivot, swivel by semitonal distances round the central note (A), while balanced either side are two instances of pitch interval (3).



EXAMPLE 6.10. "Mo 'n Herb's Vacation – Second Movement" Main Theme.

The development of the theme begins at b. 38 where the oboes and violins state the first fragment in crotchet rhythms over a two bar duration. The rhythm of the statement here is comparatively uniform to its initiation in b. 1, but any sense of rhythmic uniformity is thwarted in the subsequent bars. In b. 40 an ostinato is introduced in the violas which is then picked up by the cellos in b. 41. A succession of 8-note group demisemiquavers unfolds where all notes from the first '8-note' fragment of the theme are retained as well as the accented subdivisions which fall on the 1st, 4th and 6th notes. Because of the successive repetitions of it at this point, the accents slightly disorientate the relative uniformity of the rhythmic groups implying a lower hierarchical rhythmic structure. The notes used for the ostinato are maintained from the first '8-note' fragment of the theme. Then in b. 41, as the ostinato continues with the first fragment, the second fragment is introduced in the cellos and contrabass. This generates rhythmic friction as the second fragment is rhythmically made up of a crochet note triplet, two straight crotchets

and a quaver note triplet played against the aforementioned 8-note demisemiquaver groups. The whole theme folds in on itself with the simultaneous reiteration of the two fragments. However the extent of this reiteration simultaneity is not yet complete because from the end of b. 41 into b. 42, double stops in the violins state the first fragment harmonised in parallel major 3$^{rd's}$ with another part of the violin section accentuating the pitch interval (11) which occurs as the sustained dyad on beat 3 of the original theme. Meanwhile, in the same bar, on beat 3 starting on the second value of a crotchet note triplet the first fragment is again introduced at T_6 and played out until b. 44. It certainly is a highly concentrated few bars which in sum, states the first fragment 20 times (including transpositions) between bb. 38-44.



EXAMPLE 6.11. "Mo 'n Herb's Vacation – Second Movement" Variations on the Theme bb. 38-44.

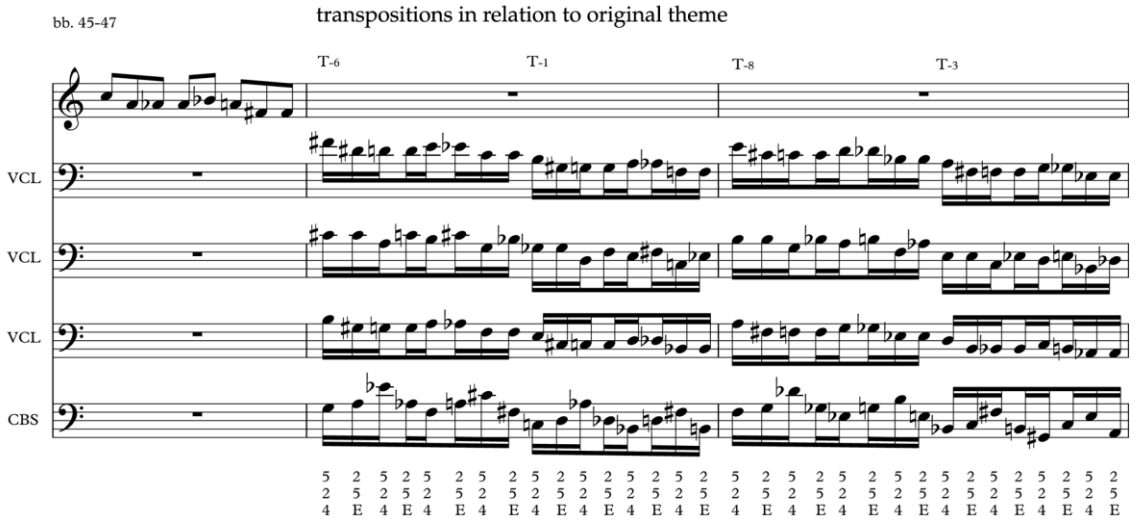
A rhythmically augmented transformation of the first fragment appears at b. 45 in the strings (ex. 6.12). The 8-note demisemiquaver group has now transformed into 8 quavers where they are grouped by 3-2-3 divisions converging with the same accents already described in the demisemiquavers. Between bb. 46-47, the 8-note demisemiquaver group outlining the first fragment is reintroduced in the strings only this time it is transposed and harmonised using the alternating chord form technique we discussed earlier. The 4-note chords which include the

melody in the top voice move through a series of transpositions and in relation to the original theme are as follows: $T_{-6} – T_{-1} – T_{-8} – T_{-3}$. The alternating chords are made up of the following densities, D(4, 2, 5) and D(E, 5, 2), both of which are used in "Bob in Dacron" and "Sinister Footwear", so we can safely assume *CB* membership here. Following on from this at b. 49 (not shown in ex. 6.12), the theme is played by the violin, bass clarinet and bells. The combination of these instruments illustrates Zappa's unique ability for blending diverse orchestral timbres with such subtlety and finesse. The low breathiness of the bass clarinet, the mischievously enchanting contortion of the violin and high end tinkle of the bells is menacing to behold. The first fragment is then taken over by the vibraphone and violin between bb. 51-52 before it is harmonised in b. 54. Zappa's "humor something" is evident here whereby he makes a mockery of the first fragment by spacing the harmonies at distances of a semitone save for the pitch interval (4) in two of the inner voices. The chord is a D(1, 1, 1, 1, 4, 1, 1, 1) and is performed by marimba, xylophone, vibraphone, chimes, bells, clarinets and oboes which evokes a cartoonesque characteristic. It is interesting to note how these humoristic inferences function and in fact how common they are in the orchestral pieces. As in the ECE music, the intention here is to appeal to the listener's pre-conceived notions of what a "humor something" is, based on cultural symbols experienced from many years of exposure to American archetypal clichés. Zappa was succinct in describing how timbral effects can convey certain things to certain audiences, how he used them and his influence in this area.

> I've stated elsewhere that "Timbre Rules" -- rules what? For one thing, it rules in 'the humor domain.' The minute you hear a trumpet with a Harmon mute going "Fwa-dafwa-da-fwa-da," you register 'something' -- a 'humor something.' (There aren't any technical names for these 'things' because they don't give foundation grants to study this kind of stuff.)
>
> Likewise, a bass saxophone, playing in its lowest register, conveys another sort of 'H.S.' (Humor Something) -- and how about our ol' buddy, The Slide Trombone – surely this graceful, expressive piece of machinery has its own little 'H.S.' radiator built into it. I've developed a 'formula' for what these timbres mean (to me, at least), so that when I create an arrangement -- if I have access to the right instrumental resources -- I can put sounds together that tell more than the story in the lyrics, especially to American listeners, raised on these subliminal cliches, shaping their audio reality from the cradle to the elevator... I owe this part of my musical existence to Spike Jones.[29]

[29] Zappa & Occhiogrosso (1989, pp. 171-172).

There is a parallel here in that Zappa is describing how he "put[s] sounds together that tell more than the story in the lyrics", but also, to paraphrase, how he manipulates sounds so that "frequencies too are conveying information that transcends the musical information". In the first, Zappa seems to be referring to the semiotic principal and how his "acute awareness of his audiences' musical knowledge [was] used as a semiotic horizon to…signify meaning".[30] And in the second, extra musical meaning as in the physiological effects, that is what certain combinations of frequencies can do to a person physically. Even though part of Zappa's reference in the above quotation is connected to 'lyrics' it certainly is not exclusive to them as the suggestive musical humour identified in the orchestral pieces contends.

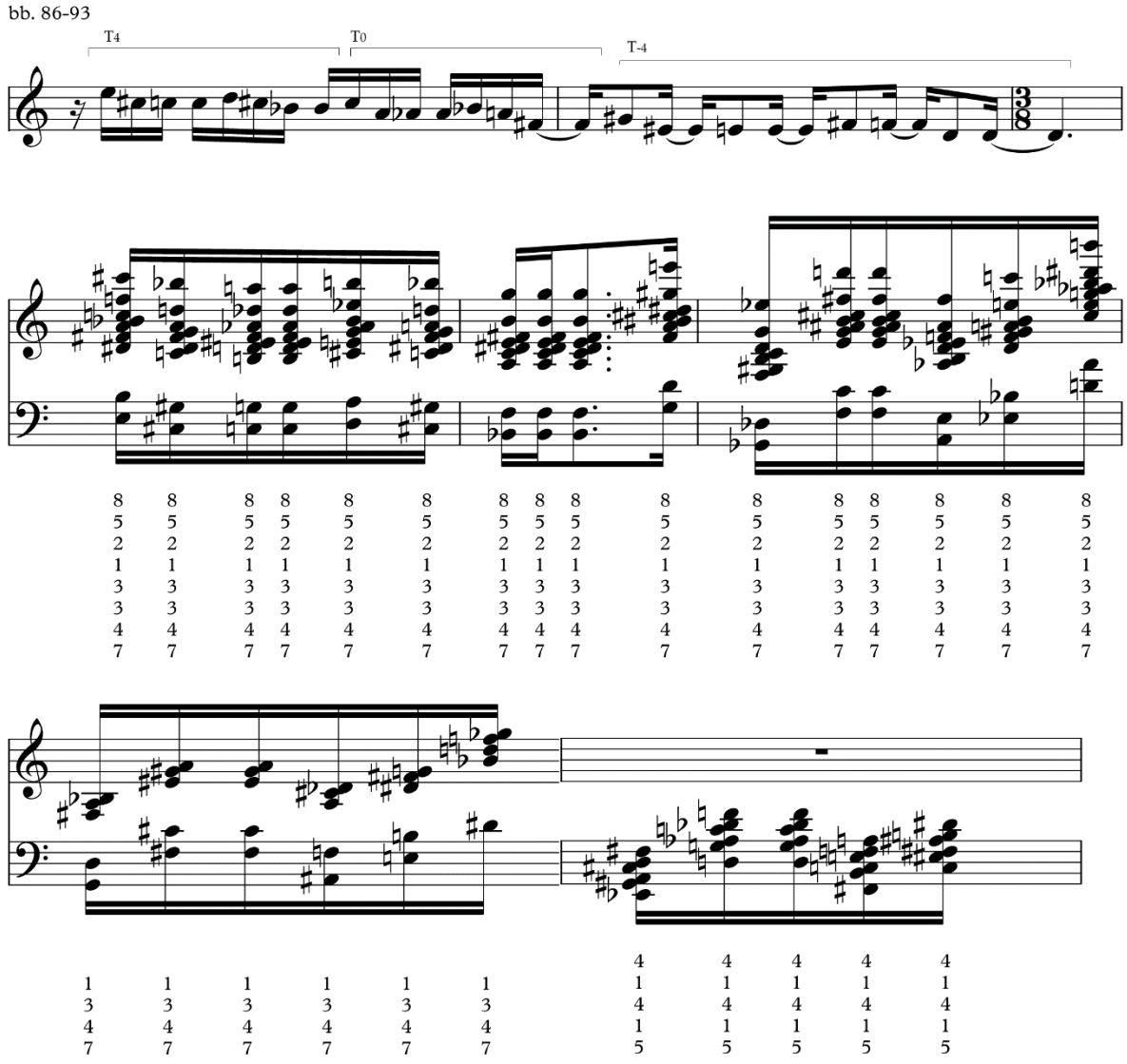


EXAMPLE 6.12. "Mo 'n Herb's Vacation – Second Movement" Variations on the theme in alternating chord form bb. 45-47.

Moving on to the following instantiations of the first fragment in bb. 86-87 (ex. 6.13), the starting point in b. 86 and rhythmic configuration misaligns the fragment placing the 8-note group successions on metrically weak points of the bar. From bb. 89-92 the woodwinds perform the entire theme isomelically modified so that it is augmented from a length of one bar to four. The theme is also harmonised using an intervallically fixed D(7, 4, 3, 3, 1, 2, 5, 8). This

[30] Carr (2013, p. 3).

density is a high energy chord where the intervals are partitioned by a progressive outward expansion of distances from pitch interval (1) in the middle of the chord to the outer (7) and (8) at the bottom and top of the chord. It is followed by a smaller density, D(7, 4, 3, 1) in b. 92 and then D(5, 1, 4, 1, 4) in b. 93. This process of chord construction is another example of compositional continuity among the pieces studied so far, which is the fixed intervallic densities tracking a melody.

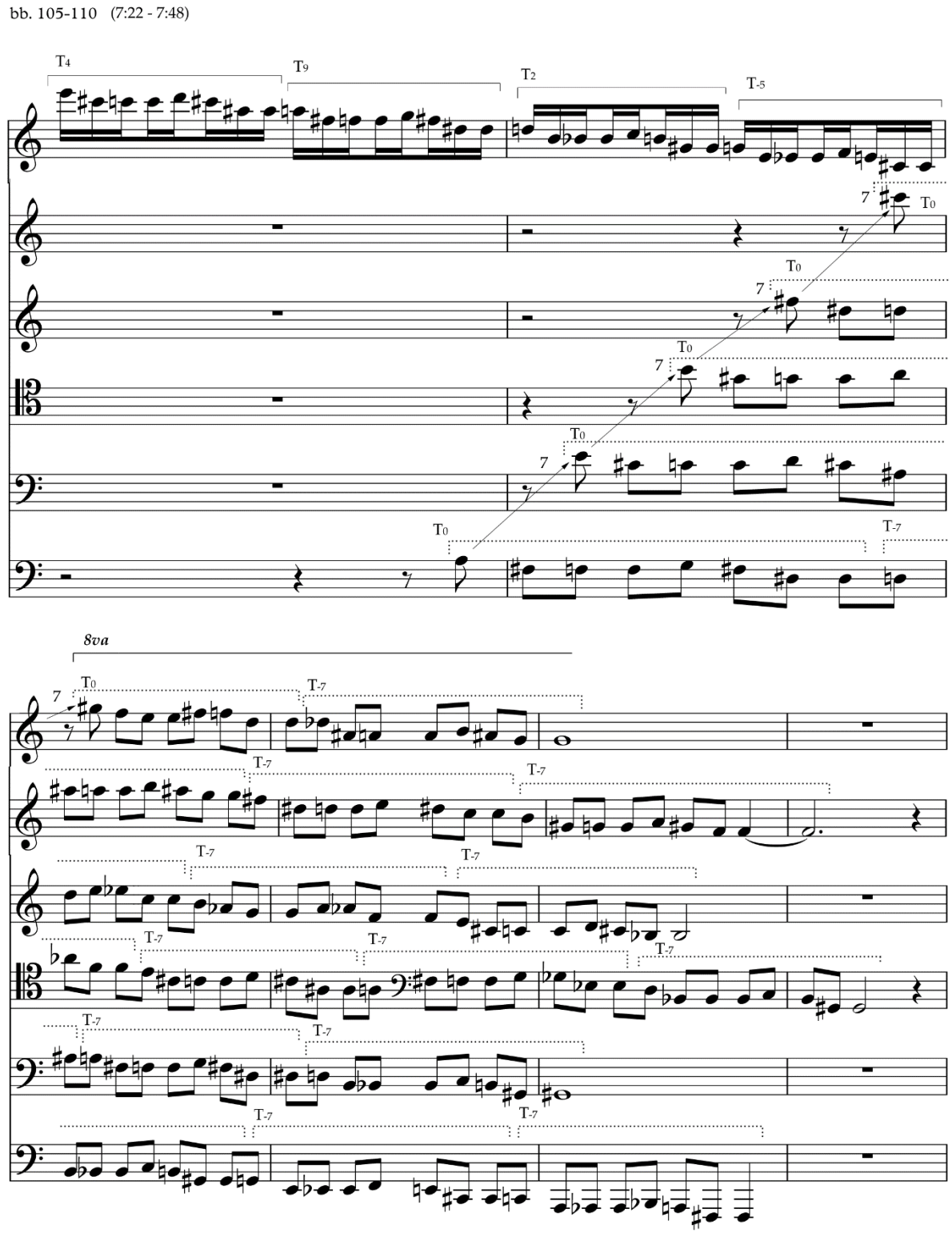


EXAMPLE 6.13. "Mo 'n Herb's Vacation – Second Movement" Fixed Intervallic Densities bb. 86-93, (6:40-6:45).

At bb. 105-106 the violin states the first fragment four times with each statement at: T_4 – T_9 – T_2 – T_{-5} (ex. 6.14). At the end of b. 105, the first fragment is then distributed among tuned percussion, brass and woodwinds, transpositionally rotated in a descending fashion. From its instigation at b. 105 through to b. 106, it cascades, starting with the bass trombone and tuba on the last quaver of b. 105, and then with subsequent transposed reiterations beginning on each crotchet beat thereafter respectively until all iterations are performed at bb. 107-108. This canon is designed so that each subsequent instantiation of the fragment begins at pitch interval (7) higher. So in the bass trombone and tuba, the starting note is (A), a crotchet beat later and the second instantiation starts a pitch interval of (7) higher on (E), then (B), (F#), and so on. Then from each respective starting point in each instrument, the fragment is rotated descending by a pitch interval of (7) every time. This happens in each instrument. This is interesting because although there is differential rotation of the fragment among all the instruments and consequently no convergence of the fragment at any point, the section is somehow held together by the same transpositional sequences moving at different points in time. The process can also be attributed to the multi-layered polyrhythms earlier in the piece between bb. 20-27, where different irregular tuplets are stacked on top of each other. The tuplets rub against each other causing rhythmic friction, but there is a difference in that they converge at the beginning of each bar, like small chunks of differential time which unite at fixed points unlike the divergence in (ex. 6.14). This appears as a microcosmic example of Zappa's concept of time. The general idea being that "everything is happening all the time", and that the linearity of time is merely a form of conditioning, in that "the human idea of stuff" is that there is a beginning and an end.[31] However, if we were to acknowledge this particular idea of time and extrapolate it to this section of music it would fit neatly into that conceptual paradigm. Of course it would only truly correspond if the rotations were to continue indefinitely but "the human idea of stuff"

[31] Menn (1992, p. 64).

prevails and therefore the individual rotations of the fragment do come to an end to allow for the next musical event.



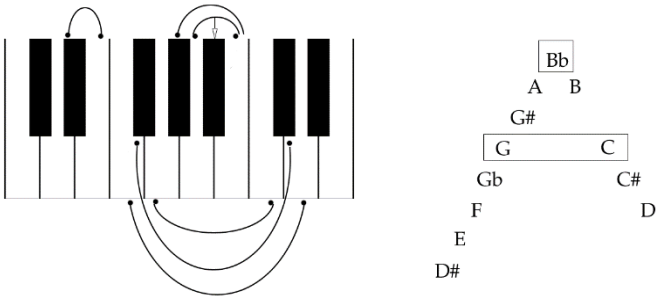
EXAMPLE 6.14. "Mo 'n Herb's Vacation – Second Movement" Differential rotation of first fragment bb. 105-110.

The next recapitulation at b. 114 (**II**, 8:04-8:06) is contracted to 6 notes and is harmonised in the clarinets and trombone made up of D(3, 3, 1, 4). At this point, it behaves as a momentary thematic signal and unlike previous instantiations is not successively developed. The final two statements are slightly adjusted. In the quintuplet figures in the second clarinet at b. 131 and flute at b. 132 (**II**, 9:17-9:19), the 'swivel round' formation that appears in the initial theme (see ex. 6. 10) reoccurs but transposed at (E) which as a result reduces the original fragment from 8 to 5 notes.

Textural Qualities

The theme is prominent in providing most of the melodic material throughout the "Second Movement". However, equally important is the textural quality and how Zappa employs the sound-mass technique by emulating the type of microtonality one can experience in Pendereki's "Threnody to the Victims of Hiroshima" (1960). There is a large section made up of this type of dissonance that extends from bb. 14-37 (**II**, 1:08-2:46), and the combination of timbre, dynamics, articulation and dense chords exerts a force that is, to paraphrase Zappa in discussing Varèse, "highly volatile and about to explode." I shall now examine some of the ways this is achieved. Beginning at b. 14, the cascade effect is used where each note is successively introduced, progressively adding to the impending sound mass at b. 16. This slow moving note additive and subtractive texture resembles the *Klangfarbenmelodie* technique. At b. 14, notes in the violins begin to progressively overlap in the following order (Bb, A, B, G#, G, C, C#, Gb, D, F, E, D#) until all notes converge at b. 16. The sound is dense because all 12 notes are sounded simultaneously and also until b. 16, all of them are played within an octave which further adds to the densification. In addition, the order of notes facilitate an outward dispersion from within that is best imagined on the keys of a piano (see ex. 6. 15). The (Bb) is the starting point followed by consecutive semitone descending and ascending movement away from the (Bb). So (Bb) is followed by a semitone descent to (A), a semitone ascent to (B) and

so on. But in typical Zappa fashion, the potential for a complete symmetrical pattern is interrupted at the note (G), which if full symmetry were intended would be the note (C). However, persevering with this observation, if we take the (G) and (C) notes together as being the starting points for the remaining outwardly dispersing notes, we can observe that from the note (C), the dispersion is ascending and from (G), descending. The observation gives a possible insight into the probable origin of conception, which is the piano with pedal depressed and semitone motion away from the starting note. The interruption to this symmetry could be simply down to compositional choice.

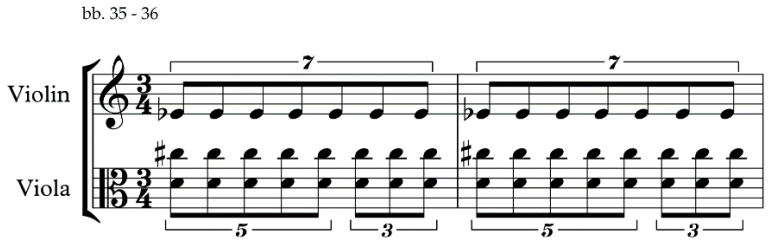


EXAMPLE 6.15. "Mo 'n Herb's Vacation – Second Movement" Outward Dispersion of Notes bb. 14-16.

At b. 17, other sections of the violins play quaver note triplets that either move up and down between notes (G) and (Bb) or (G) and (A) within the octave. This colliding of notes and the fact that they are played *glissandi* encapsulates the microtonal sound, which is naturally a by-product of slowly sliding between notes on a fretless stringed instruments. As this process continues, introduced at b. 19, the cellos follow the same procedure of note superimpositions as in the violins a few bars earlier. This progressive superimposition in conjunction with the *glissandi* in the violins furnishes these few bars with an impenetrability that almost suffocates the musical fabric. It conveys an uneasiness, an impending doom, it is potentially discomforting, harrowing, claustrophobic, or is it representative of Zappa's issues with Mo Ostin and Herb Cohen's vacation in Spain? If it were, conclusively the latter case, then it might

seem to bear significance in relation to Bernard's claim of the difficulty in "organising the listening experience" where a 'thin' accompanying narrative provides limited clues as to how one might navigate the plot and music synchronously.[32] But, notwithstanding this obvious challenge, does it really matter that the narrative is insubstantial? Is it not plausible that a person could listen to the music and enjoy all the nuances and technicalities for its own sake, much in the way one would assume that Zappa did when listening to Varèse?

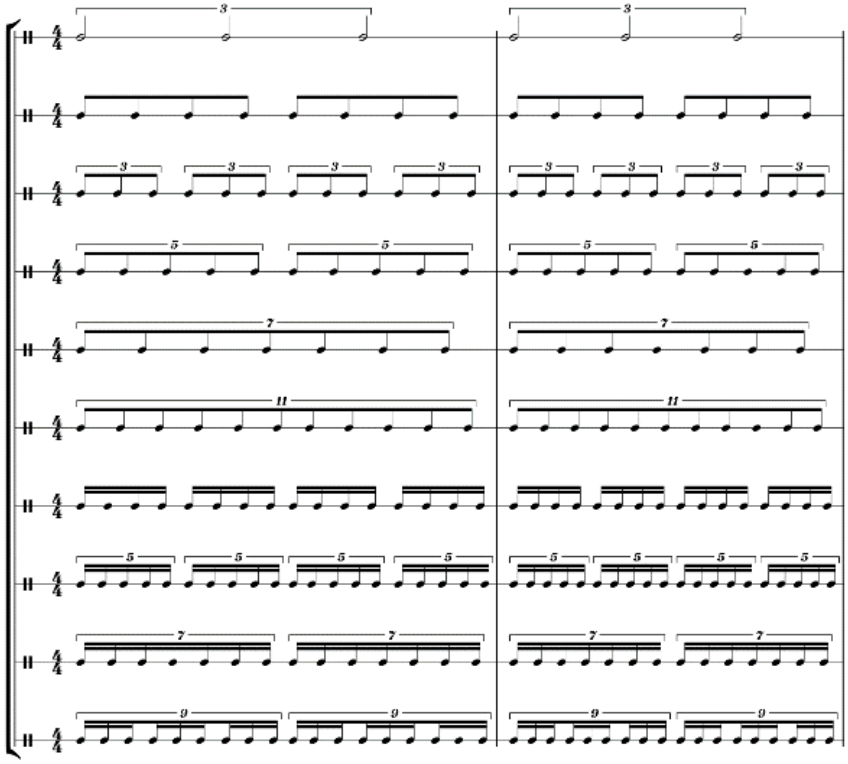
The continuation of this texture between bb. 14-37 gradually increases in tension with subtle percussion timbres interjecting, adding even more menace. This is set against slow ascending and descending *glissandi* in the strings and *col legno* rhythms which divide the bars into concurrent iterations of tuplets for each instrument. These polyrhythmic configurations are layered and remain non-aligned until the beginning of each bar where the individual rhythmic cycles converge. Each instrument is designated a repeated succession of tuplets where semiquaver quintuplets are played against repeated successions of semiquaver septuplets, while semiquaver undecuplets are played against quaver septuplets and so on, creating a quiet cacophony of 'wood tapping'. An early incarnation of this technique was used in "Touring Can Make You Crazy" from *200 Motels* (1971) where its application is relatively restrained in comparison with conflicting tuplets confined to the violins and violas consisting of quaver-note septuplets played against a quaver note quintuplet and triplet (see ex. 6.16a).



EXAMPLE 6.16a. "Touring Can Make You Crazy" – Polyrhythmic *Col Legno*.

[32] Bernard (2000, p. 91).

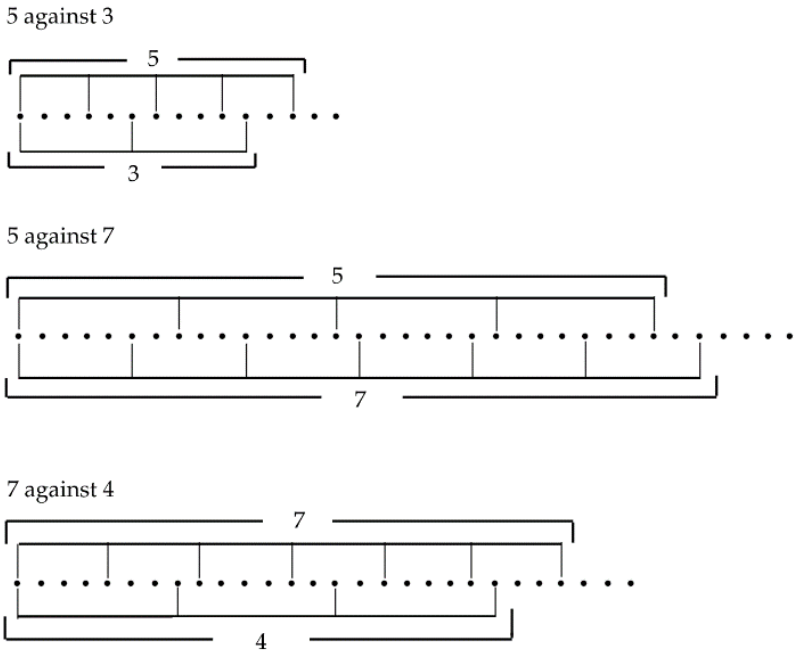
bb. 23-24



EXAMPLE 6.16b. "Mo 'n Herb's Vacation – Second Movement" – Polyrhythmic *Col Legno*.

"Multi-layered divisive polyrhythms"[33] are frequently encountered in Zappa's music to varying degrees and the composer had even devised diagrams to illustrate his approach. Zappa had created a 'study sheet' of rhythms like this in 1972,[34] probably to clarify ideas for his own purpose and to aid his musicians in understanding the concept of layered polyrhythms. The sheet shows 9 instances of differential tuplets sets, 3 of which are shown in (ex. 6.17).

[33] Wannamaker discusses divisive and multiplicative polyrhythmic arrays in his article: Wannamaker, R. 2012. 'Rhythmicon Relationships, Farey Sequences, and James Tenney's Spectral CANON for CONLON Nancarrow', *Music Theory Spectrum*, 34(2), pp. 48-70.
[34] The study sheet was sent to me by Arthur Barrow and it shows a collection of differential tuplet sets.



EXAMPLE 6.17. Multi-Layered Divisive Polyrhythms (extract from Zappa study sheet).

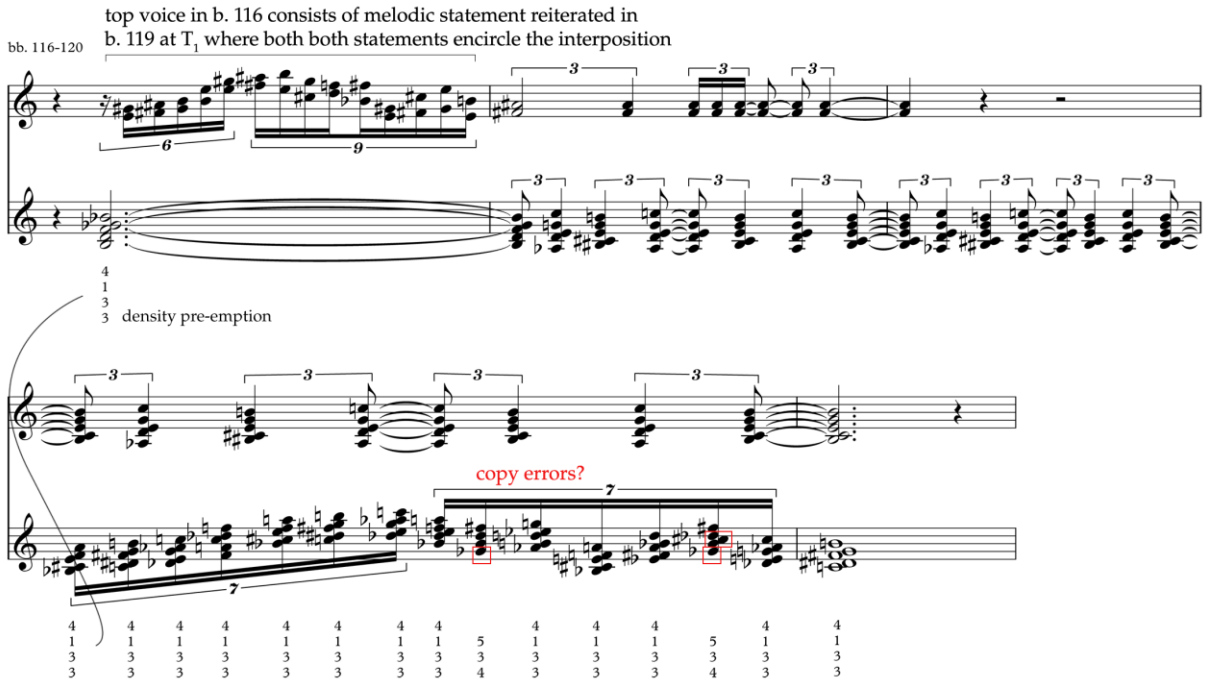
The Diatonic and Chromatic Dichotomy

Although the "Second Movement" is predominantly dissonant, there are certain points where diatonic harmony surfaces. Its occurrence however, is fraught with conflict, as if the diatonic harmony is attempting to 'break-through' the dissonance but is ultimately overwhelmed by it. The first hint of diatonicism occurs at b. 83 (**II**, 6:16) where a Bb Lydian chord appears in the strings and vibraphone accompanied by a melody that is within the vicinity of the Bb Lydian scale. It is characteristically dismembered by chromatic notes causing a momentary collision between diatonicism and chromaticism. Whilst this wilful destruction of diatonicism is typical of Zappa, the florid melodic runs in the clarinets from b. 123 (**II**, 8:42) are most uncharacteristic. Some of the melodic runs are distinctly pastoral and momentarily hint at idyllic rural images which is a highly unusual occurrence in Zappa's orchestral music. It is rendered even more aesthetically pleasing because of the preceding dissonance, which in fact is another clever device Zappa uses where the polarization between diatonic harmony and

chromaticism is heightened and allows the former to permeate the dissonance and provide a momentary repose. If we return to b. 116 (**II**, 8:10) we can observe from this point onwards a type of interposition within the music. Even though the musical content within it is self-governing, that is it does not specifically build on prior musical events, the interposition however is marked by two similar events either side of it. For example, at b. 116, the trumpets perform a short melodic phrase which is then proceeded by 5-note alternating chords in the brass. The harmonic alternation bears little relation to any other event within the piece and comes to an end at the point where the short melodic phrase in the trumpets is reintroduced, only this time the phrase is performed as an isomelic variation by the strings. This short section between bb. 116-120 (ex. 6. 18) is non-developmental in relation to the piece as a whole, but while being part of the whole, it also exists on its own as a short musical entity where the two melodic phrases represent each side of the interposition.[35] We can observe at b. 119 in (ex. 6.18) below, a few anomalies marked in red wherein notes appear to unnecessarily disrupt the consecutive iterations of D(3, 3, 1, 4). The (Gb) on the second septuplet semiquaver creates a Gb major triad and reduces the cardinality of the preceding densities from 5-note structures to 4. This seems odd and uncharacteristic and can only be the result of copying errors. Another error appears on the 6th note of the septuplet, the written enharmonic equivalents (C#) and (Db) again create a Gb major triad. In addition, there are no triads perceptible in the recording at these points, strongly suggesting that these are copying errors. So far in our analyses, the 1979 *Munchkin Edition* of "MnHV" yields the highest instances of copying errors. I am unsure if these errors remained in the subsequent *Munchkin Edition* score of "MnHV" as it was revised in September 1983 and I have been unable to consult that particular edition.

[35] This does not dismiss the fact that even though this section is analysed as an interposition it still is an important part of the whole in terms of how it is balanced against preceding and proceeding musical events.

Continuing on from b. 123, the aforementioned pastoral type clarinet runs instigate localised development and variation. Local development is exemplified by a short section of music that is unified by way of formal techniques in musical cohesion. In this context here, an idea is developed, but only locally, that is it cannot be found anywhere else in the piece, however it lends cohesion to existing material at that point. And that point is from bb. 123-133 (**II**, 8:42-9:25). The clarinet runs begun at b. 123 continue until b. 125 where two successive chords are introduced, D(T, 4) and D(7, 1, 4, T, 5, E, 3), both diatonic formations, with the latter containing all the notes of a C Lydian scale. It is these two chords which provide the periodic sign at the end of each short musical event. The first being the clarinet runs and the second a development of them. The development is short, but just as the aforementioned runs come to rest before two successive chords at b. 125-126, essentially the periodic sign, so do the runs in the developmental section between bb. 131-132. This time the chords are slightly altered with D(3, 4, 1), followed by D(4, 7, 8, 7, 7, 9), again the latter containing all the notes of a Lydian scale only in this instance they are derived from the Eb Lydian scale. The way in which these two successive chords slide from one to the other in the second incarnation at b. 132 creates an intense melancholic weeping type quality, it is almost sentimental.



EXAMPLE 6.18. "Second Movement" Interposition.

Sketches and Assemblage

Apart from identifying the interposition and contained development and variation, what else does this tell us about the music at this point? One can make a reasonable deduction that these two sections were most probably composed separately and incorporated into the composition. It is suggestive of this process because there is limited correlation to be made with the larger part of the "Second Movement" which up until that point is made up of heavy dissonance and thematic continuity as exemplified by the extrapolation of the first and second fragments of the original theme. Apart from the inference of the theme between bb. 131-132, from b. 123 the music is far removed from anything prior in the piece. It is common practice for composers to assemble various ideas written at different times and to integrate them into a whole composition. One of the essential skills required is to be able to connect the disparate ideas so that they flow effortlessly from one to the other. It is also probable that these ideas will be modified in relation to each other so they can be brought up to date at the time of cementation

of the overall composition. Carrying a theme built someplace else to another idea allows for continuity to be established. A micro example of this is between bb. 131-132 where an embellishment of the first fragment is stated among material that seems improbably derived from any events found in the more dissonant sections earlier on in the piece. Naturally, one can never be absolute about if and when these disparate ideas connect, but logic dictates that if a composition has been worked on for a substantial amount of time, maintaining momentum and continuity would be one of the main challenges. Furthermore, we know for a fact that Zappa's lifestyle did not always permit the opportunity to work on one composition for unbroken protracted periods of time. Zappa's music went through many transformations before culminating into complete compositions and even then would still be subject to changes thereafter. A salient example is "Dupree's Paradise", a piece written for the ECE and frequently performed during the 1973 tour. The piece was later orchestrated for the *Ensemble InterContemporain* with the interposition of a large newly composed section. It would be axiomatic that in this case, a separate idea written years after the initial conception and completion of the piece had been merged into an existing one. Furthermore, the larger section differs greatly to the musical parenthesis either side of it. Zappa frequently composed music while touring with his ECE, and would write sketches and ideas on manuscript paper then later experiment with the disparate ideas and attempt to fit them together. In a 1983 interview, Zappa states that, "I'll sketch some things out while I'm waiting in an airport, and come back from a tour with a briefcase full of sketches."[36] This was not his only method for composition, Zappa had many approaches, but in this case it would seem that integration of separate ideas is at the very least plausible.

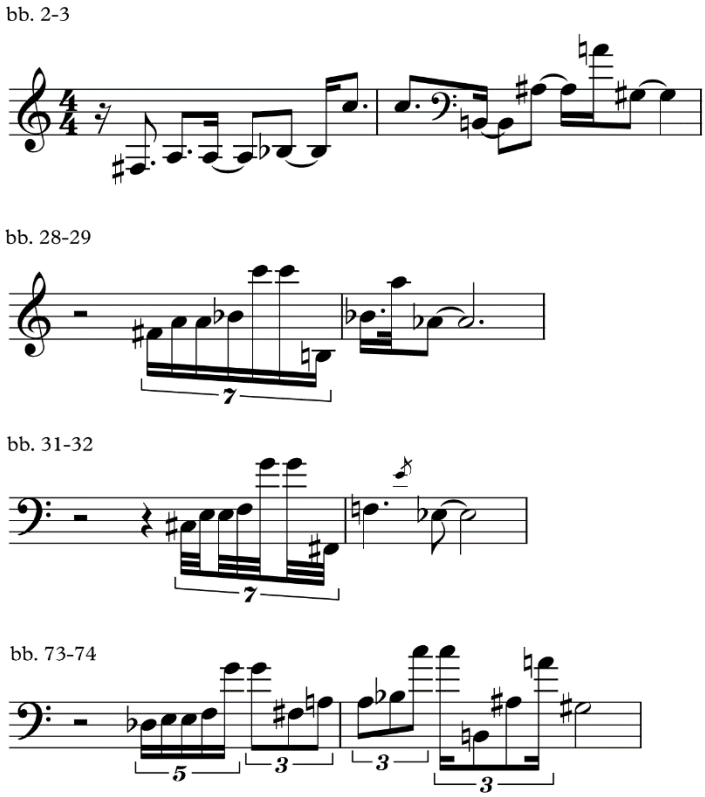
[36] Forte, D. 1983. 'An Interview with Frank Zappa', *Mix*, 7(6), pp. 86-87, 90, 104, 106.

Third Movement – The Theme and Variations

Since this movement is an amalgamation of all three, I shall abbreviate the movements to "First", "Second" and "Third" since reference to all three will be frequent and I want to refrain from unnecessarily bloating the text. The "Third" has an intensity far more reaching than the previous two movements. It is powerful and unrelenting with hardly any repose. The orchestra is fully engaged in the manipulation of the most discordant musical events which creates a sense of prolonged unease and tension. Apart from instigating its own theme, most of the musical material used in this movement is derived from the "First" and "Second". The melodic figures from the "First" have now become thematic and are frequently exchanged between the theme from the "Second" and the musical characteristics of the "Third". The "Third" is recapitulatory where all three movements seem to have converged into one. Repetition of earlier events can be brief or extensive where an entire section is recapitulated. Themes and sections are diffused and seem to orbit around other musical elements. For instance, the melodic figures from the "First" are strewn throughout and seem to be suspended in time appearing as distant echoes of former more pronounced instantiations. Where before the figures were focal points, they are now part of a collective that serves the purpose of amassing the most prominent features of each movement and presenting them almost simultaneously.

The theme of the "Third" is a two bar disjunctive phrase which is performed in bb. 2-3 by brass and pizzicato strings. Intervallic leaps between some notes are quite large, in particular, the distance between the first two notes in the second bar are over two octaves apart. The first reiteration of the theme is at bb. 12-13 in the woodwinds at T_5, it retains the rhythm from the original and only begins to deviate isomelically at bb. 28-29. Rhythmic deviation is in the form of a semiquaver septuplet, dotted semiquaver, demisemiquaver and quaver tied to a dotted minim. These rhythms allow for retention of the 10-note original theme at bb. 2-3 except without the tied notes (see ex. 6.19). The next variation at bb. 31-32 preserves the 10

notes of the theme in the form of a demisemiquaver septuplet, dotted crotchet, an acciaccatura, and quaver tied to a minim. Further deviation takes place at bb. 73-74 where only the first 7 notes of the theme are retained. Before completion can occur, it is interrupted at the 7th note, which acts as an axis point between the incomplete instigation and the beginning of the next a pitch interval of (5) higher, also subject to isomelic variation, yet unlike its predecessor is fulfilled in that it contains all 10 notes of the original theme. From bb. 74-76 the theme is broken up of which the remaining strands become more suggestive of the theme rather than being directly related. From this point onwards there is no more reference to the theme and emphasis is now placed on the melodic figures of the "First" and the theme of the "Second". It is interesting to note how the theme of the "Third" is discarded quite early in the piece, the approach in the "Second" of elevating the theme to an important constructive element is in the "Third" unfulfilled.



EXAMPLE 6.19. "Third Movement" Variations on a Theme.

Recapitulation of the Themes from the First and Second Movements

In order to follow this next part of the analysis, consultation of the score is recommended. I shall now focus attention on the recapitulation of the themes from the first and second movements. A large section of the "First" is recapitulated at bb. 35-63 (**III**, 1:33-3:05), aligning itself with the former from bb. 31-59 (**I**, 2:08-3:41) with slight alterations, mainly appearing after melodic figure rest points where new interjectory material is introduced. For example, in the "First", when a given melodic figure comes to a resting point, there is a short interjection. Collectively, these interjections can be in the form of drum fills, sustained chords or short accompanying figures. However, in the "Third" they are replaced with more dramatic events such as horn swells, fluctuating 11-note chords and large percussion. For the most part, the rhythm is kept intact, therefore it is a direct quotation as opposed to the isomelic variations that occur later on in the piece. In addition, the melodic figures are again confined to the clarinet with the exception of a short figure played by the bassoon in bb. 41-42. Although generally the clarinet prevails as the instrument designated for the repetitions, distribution of the figures among other instruments is also implemented adding to the thematic variation. Where the clarinet performs the figures of bb. 37-43 in the "First", now the piccolo, flute, and bassoon perform them as isomelic variations in the "Third" from bb. 87-90 (**III**, 4:23-4:27). Further orchestral colour is added to another large sectional repetition of the "First" from bb. 122-145. Herein is an ongoing exchange of figures between the clarinet, brass and large string section which becomes progressively forceful with sections of the orchestra appearing to be competing for dominance. At bb. 122-124 (**III**, 6:00-6:11), the introductory 'guitar lick' from the "First" is played by the horns followed by the two subsequent bars of clarinet figures which are kept intact with no variation. The 'guitar lick' is reintroduced in the trumpet, bass trombone and tuba accompanied by the timpani. The figure slowly deviates into various inferences of it by the melodic and rhythmic coordination of bass trombone, tuba and timpani which fight it out

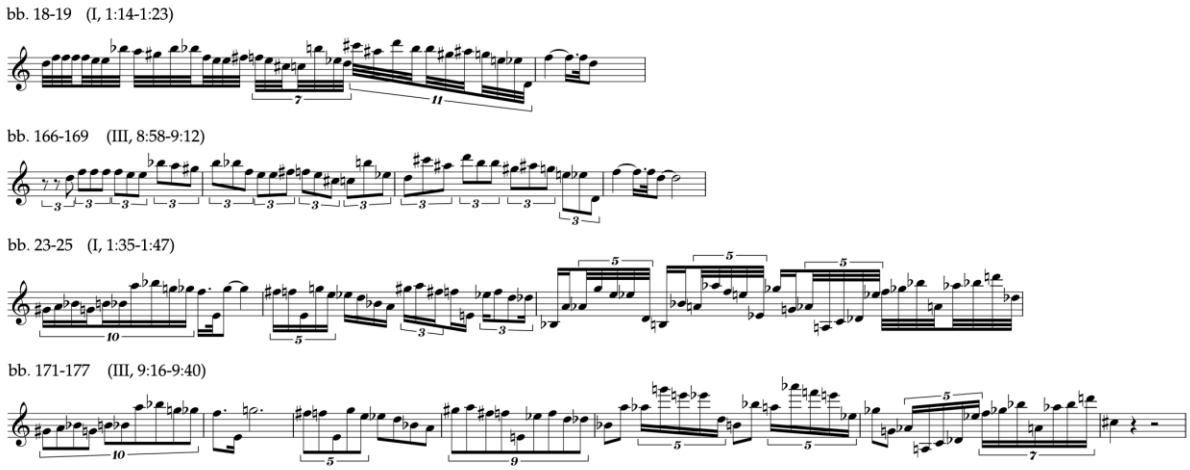
until the woodwinds, brass and strings enter at b. 135. A unison incarnation performed by a large section of the strings at b. 139 (**III**, 7:10-7:14) of a figure derived from bb. 11-12 (**I**, 0:44-0:48) in the "First" is barely discernible, such is the effect densely harmonised isomelic variation can occasionally have. The same figure a few bars later at b. 143 is even further removed from recognition where it is harmonised in the brass. In cases like this, reiterations of previous melodies subject to this type of variation can sound profoundly different yet still hold a continuity as a result of the same source material. It is a clever device used in order to maintain control over the unfolding of a piece where variation and development is not always so easy to implement. Moreover, if the preceding musical event, or in this case 'figure', does not follow the chronological order of its appearance in the first instance ("First"), and some other figure is used instead, then when an isomelic event does occur it is rendered less recognisable. Returning to b. 143 and the repeated figure is now carried through by alignment of an extra bar, ultimately recapitulating bb. 12-13. Overall, this is a substantial repetition with relatively limited development.

The theme from the "Second" is introduced directly after the "Third" in the violin at b. 14 (**III**, 0:22-0:25) with a stuttered reiteration of the first note before proceeding in its entirety. At this point, the theme is distributed between two instruments where the first fragment is in the violin followed by the second in the trumpets. The next appearance of the first fragment is in the bass trombone, tuba, vibraphone and chimes at bb. 67-69 (**III**, 3:11-3:19), played slowly in crotchet rhythms with a slight adjustment where the last 4 notes are transposed at T_1. The fragment is played *molto vibrato* with use of the slide trombone prompting another "humor something", the exhaustion and defeatism inherent in its expression conveys a humorous despondency. At b. 70 (**III**, 3:19-3:23), the fragment is harmonised using fixed intervallic density alternating form (D(4, 1, 4, 1, 5, 1, 3) – D(1, 2, 1, 2, 1, 2, 1)) and is designated to 8 consecutive quaver rhythms. Stated in its original form at b. 146, the theme is

played in its entirety as it appears at the beginning of the "Second" except instead of it performed as a violin solo, it appears in the trumpets. This particular incarnation of the theme initiates a substantial sectional repetition of the "Second", where the first 30 bars are repeated. The sectional repeat is subject to some minor orchestral changes with the addition of 5 extra bars making it 35 bars in total from bb. 146-181 (**III**, 7:37-10:00). The first significant insertion is from bb. 162-163 (**III**, 8:41-8:47), with a quotation of a melodic figure from the "First" before the repetition realigns itself at b. 164 with that of the "Second" at (**II**, b. 17). The following melodic extract from the "First" (see ex. 6.20) is superimposed at b. 166 and is an isomelic modification of the original from (**I**, bb. 18-19). Rhythmically it has been changed from 16 demisemiquavers, a demisemiquaver septuplet and demisemiquaver undecuplet (16 + 7 + 11 = 34) to consecutive quaver note triplets spanning 3 bars of 4/4 (with 2 quavers omitted at the beginning of b. 166), which corresponds to the 34 note figure from which it is based.

From bb. 171-177, further isomelic variation of melodic figures at (**I**, bb. 23-25) in the "First" is in operation. In this instance, 3 bars have been expanded across 7 by rhythmic augmentation. Bar 23 extends from 1 to 2 bars in length at bb. 171-172, the specific subdivision of a decuplet in the "First" is maintained at b. 171 but it has transformed from a semiquaver to a quaver set decuplet therefore filling the space of one bar. Then, the periodic sign that we acknowledged in the analysis of the "First" tied to the end of the decuplet in b. 23, of which as a consequence of its augmentation here, pushes the periodic sign into the next bar at 172. Rhythmic augmentation continues with the figures at bb. 24-25 in the "First" which are now spread over 5 bars from bb. 173-177. The general rhythmic contour is preserved, the semiquaver quintuplet in b. 24 is now a quaver quintuplet in b. 173 and the 4 semiquavers are now 4 quavers. The remaining 9 notes of b. 24 are grouped together into a quaver note nonuplet for the whole duration of b. 174. Finally, b. 25 is reinterpreted at bb. 175-177, essentially

isomelic variation has halved the speed of the original whilst retaining the rhythmic contour. While the recapitulation of melodic figures sourced from the "First" pursue isomelic activity, the underlying microtonality quietly unfolds with an increasing pulsation that eventually subsides before moving on to the next musical event. Ultimately, the sectional repetition of the "Second" is used as a prop for the melodic figures of the "First".



EXAMPLE 6.20. "Third Movement" Isomelic Variation of Melodic Fragments from "First Movement".

As in the penultimate moments of the "First" where the 17-note tuplet figures increasingly fleet around, so too is the case in the "Third". This spiral-like effect builds tension as the piece motions towards closure. From bb. 191-202, the 17-note tuplets are intermingled with 14 and 15-note tuplets where the flute, clarinets and bass clarinet exchange figures without any accompaniment. The tuplets are played quite consistently even though performing them without any metrical pulse would surely have been difficult, especially when 17-note tuplets are immediately followed by 14-note tuplets. The 1st flute at b. 200 seems to have had some difficulty with the 17-note tuplet where it flams on the last 4 notes. This would correspond to Zappa's comment about the difficulties experienced by the flautist, "the first flute had immense problems… [t]here was this one run in Mo 'n' Herb's Vacation that was just driving this flute

player crazy."[37] All solo tuplet figures at this point are transposed in relation to the original statements in the "First" and because all follow one after the other without any breaks, the intensity is increased. Alignment between the two movements is then initiated at (**III**, b. 206) and (**I**, b. 65) respectively, with the "Third" recapitulating the "First" from b. 65 until the end of the movement at b. 76. The sectional repetition is extended with simple isomelic variations, essentially the figures are augmented so that the rhythmic value is halved. So for instance, a demisemiquaver septuplet will now appear as a semiquaver septuplet. Apart from a transposition at bb. 206-207, the rest of the figures share the same notes as in the "First" but with different harmonisations. Isomelic variation is relatively conservative in this instance, with variation appearing to be more prominent in the reharmonisations. In the "First" from b. 65 until the end of the movement, practically every figure is harmonised, but in the recapitulation the harmonisations are significantly different.

In the previous discussion about chromatic linkage via intervallic manipulation, specifically at b. 67 in the "First" where the notes (F, E, D#, D) and (B, C, Db, D) are extrapolated over a 3 octave range; that same figure is recapitulated at b. 214 (**III**, 11:09) but is now harmonised with D(1, 2, 1, 2, 1, 2, 1), an octatonic collection and D(3, 2, 4, 1, 4, 4) a Minor Lydian (2) derivative. Harmonisation continues in the figures at bb. 216-217, but consists of smaller densities, with D(1, 4, 4) dominating the passage. In the "First" at b. 68, the quintuplet part of the figure on the 3rd beat is harmonised generating 5 iterations of 2 different Lydian structures which are D(5, 2, 1, 7, 7, 4) (x3) and D(1, 4, 3, 2, 5, 4) (x2). Upon its repetition in the "Third" at b. 216, the quintuplet is reduced in its harmonisation from the aforementioned 7-note cardinality chords to 4-notes, D(1, 4, 4) and D(3, 2, 4). The sustained chord at the end of the figure has been changed from D(E, 2, 5, 1, T, 9, 2) to D(1, 2, 1, 2, 1, 4, 4), the latter, a juxtaposition of part-octatonic D(1, 2, 1, 2) and D(2, 1, 4, 4) which feature

[37] Ibid.

heavily in this section. The alternation between the 7-note cardinalities D(6, 3, 2, 4, 1, 3) and D(2, 1, 2, 2, 1, 3) in the figure at (**I**, b. 70) has also been reduced to the same 4-note chord, D(1, 4, 4) at b. 217. In the last 3 notes of the figure in (**III**, b. 217), the density size increases to 6 and 8-note cardinalities which in order of sequence are D(7, 9, 2, 5, 4) – D(2, 1, 2, 1, 2, 1, 2) – D(7, 9, 2, 5, 4). For the purpose of identifying balance as a consistent device, we can observe a micro example here where either side of D(2, 1, 2, 1, 2, 1, 2) are balanced two statements of D(7, 9, 2, 5, 4). It can also be viewed as a short alternating form, but I prefer to acknowledge it as a careful balance between two specific densities because it concludes a passage of music as opposed to an ongoing alternating form. Note also how the intervallic distances between these three densities shrink as the octatonic passes between the two Minor Lydian (2) densities, a sort of rapid pulsation occurs as the octatonic momentarily contracts the pitch space. This shows that balance is not exclusive to the melodic context as described in the aforementioned "Pivots and Balances" analysis (ex. 6. 3), but can also function in the chordal domain.

Reductive form in the densities continues at b. 218, where the original figure at (**I**, b. 71) that was supported by the alternating form made up of D(6, 2, 1, 7, 7, 4) and D(3, 6, 5, 3, 1, 4) has been condensed to successive iterations of the same fixed intervallic chord, D(2, 1, 4, 4). Successive use of one fixed intervallic density for an entire figure plays an important role in bb. 221-222, it also marks the beginning of the end in the sense that a significant shift in orchestration takes place at b. 221 (**III**, 11:22-11:24) before the recapitulation ends a few bars later at b. 224. The figure at b. 221 is harmonised creating D(2, 1, 4, 4) which is consecutively employed for the whole bar. The change in orchestration is marked by staccato piccolo, flutes and bells, and when synchronised by the D(2, 1, 4, 4) imbue the figure with a light airy but tight sounding characteristic. Followed in the next bar by the octatonic D(1, 2, 1, 2, 1, 2, 1) in the clarinets, bassoons and vibraphone, of which the last, due to orchestral balancing issues obscures the other harmonies of the chord. This is one of the problems that occurs in the LSO

recordings where certain sections are either played inaccurately or are not balanced well. Zappa actually referred to balancing issues in the LSO where he stated that "there was a certain unevenness from one section to another, in terms of the quality and style of the players in the section."[38] Balancing issues are quite prominent in certain sections of pieces performed by the LSO, the introduction to "Bob in Dacron" is a case in point. One would suspect that the challenges Zappa faced when hiring an orchestra was not exclusive to getting the musicians to play the right notes at the right time, but also getting them to successfully implement the dynamics and articulations and achieve a good balance between each section. Of course this is the responsibility of the conductor, however the time constraints placed on both the conductor and orchestra would necessarily impede on the successful performance of the pieces at hand. And, 'successful performance' is the operative term, for Zappa had very high expectations of how his music should be performed. Moreover, the music he wrote necessitated extensive rehearsing which would require a budget far in excess of what one might imagine he could have afforded. Zappa explained the situation in an interview from 1980 where he stated that, "It would need about 110 musicians, vast sums of money and a month of rehearsals, six hours a day, five days a week."[39] In the case of the LSO encounter 3 years later, Zappa had just 10 rehearsals. Notwithstanding the fact that the conductor, Kent Nagano had spent, prior to the rehearsals, 2 months studying the scores, and that the LSO was a proficient orchestra, the lack of time to rehearse such complex music still leaves its occasional mark in the recordings.[40]

Creative orchestration continues with the piccolo, flutes, English horn, bassoons and xylophone at b. 223. The employment of one successive density continues with 8 out of 12 chords consisting of D(1, 7, 7, 1, 7, 7). It is a detached statement of the figure utilising *staccato* woodwinds. Highly contrasting orchestration in quick succession is employed in these final

[38] Ibid.,
[39] Colbert, P. 1980. 'Zappa: Speak Out', *Musicians Only*.
[40] Hawkins, T. 1984. 'In Tune (Interview with Kent Nagano)', *East Bay Express*, 6(35), pp. 1, 11-13.

bars of the recapitulation infusing the remaining figures with humorous characteristics. In the first quaver sextuplet of b. 224, the alternating form returns with D(2, 1, 2, 1, 2, 1) – D(1, 2, 1, 2, 1, 2) and D(1, 4, 2, 1, 4, 4) – D(1, 2, 1, 2, 1, 2). The close proximity of intervals within these chords and the flat thin-like clipped sound of the woodwinds with marimba conveys another cartoonesque moment. Then in the second quaver sextuplet of the same bar, D(3, 7, 4, 4, 1, 2) which is interrupted only once by D(7, 2, 2, 4, 1, 2) brings the final figure to a close. The rounder and fuller sound of the brass in the final figure sets great contrast between the thinness of the previous figure. Orchestral timbre proves to be an important effect for the figures of the "First" in this context, facilitating rapid timbral changes within a short duration and is another fine example of the type of control and expertise Zappa had over his compositions.

A haunting and ghostly timbre is cast over the subsequent bars (bb. 225-233 – 11:41-12:21) where the first fragment of the theme from the "Second" is again repeated in slow procession-like crotchet rhythms by the chimes with high pitch sustained notes in the piccolo and flutes. As the sustained notes continue, the bassoon dynamic *mf* practically stands out in isolation against the *mp* in the horns which in comparison are understated as the coordination of the repeated first fragment unfolds. This orientation of the fragment depicts a kind of remoteness, a desertion or a calm before the storm. The melody in the bassoon and supporting harmony in the horns produce alternating forms of D(2, 1, 2, 1, 2, 1, 2) and D(1, 2, 1, 2, 1, 2, 1) but because of the dynamic difference between the bassoon and the horns, the latter's effect is more implicit and textural since the closeness of the intervals is not so conspicuous. The trombones that follow state the fragment again, and momentarily detract from the preceding eerie gestures by depicting a blatant despondency in their expression. However, haunting timbres are reintroduced at bb. 231-233 as the chimes again outline the first fragment with the despondent trombones now effectuating a low frequency rumble that is most disconcerting and for good reason too. Just as this timbre appears to bring the piece to a close, all of a sudden an

orchestral *sffz* jumps in wrenching out the preceding eerie calm with an "oogah horn" blasting while the ascending 17-note tuplet from the "First" is profusely expounded by the clarinets. The figure is immediately usurped by *spiccato* strings which are collectively vigorous and piercing and as the bows are continuously bounced off the strings, the contrabasses, cellos and woodwinds forcefully interject until it all ceases leaving just the garbage cans to rummage around a fragmented 13-note tuplet rhythm. Proceeding the short garbage can solo, the oogah horn reappears belting out the most blasphemous sound, with short attacks in the tuned percussion section and *col legno* and *pizzicato* in the strings. For a split second all is silent until the strings enter with a final fragment stated as a *fff* quintuplet made up of D(2, 1, 2, 1, 2, 1, 2) and D(1, 2, 1, 2, 1, 2, 1). The garbage cans add to the attack of the quintuplet and is rhythmically coordinated until the last strike of the piece ending on a chord made up of D(2, 1, 3, 2, 1, 4, 4). This ending is strikingly aggressive and forceful, and if this is what Zappa means by affecting the listening experience in a way that transcends the actual musical information, that is how certain combinations of frequencies can affect a person physiologically then the intention has most certainly been achieved in this case. Finally, if we tentatively return to the narrative and consider for a moment the "you can feel the anger in it" interpretation by Ed Mann, then if ever there was an almighty and dramatic "fuck you" ending to a piece of orchestral music, then this is surely it.

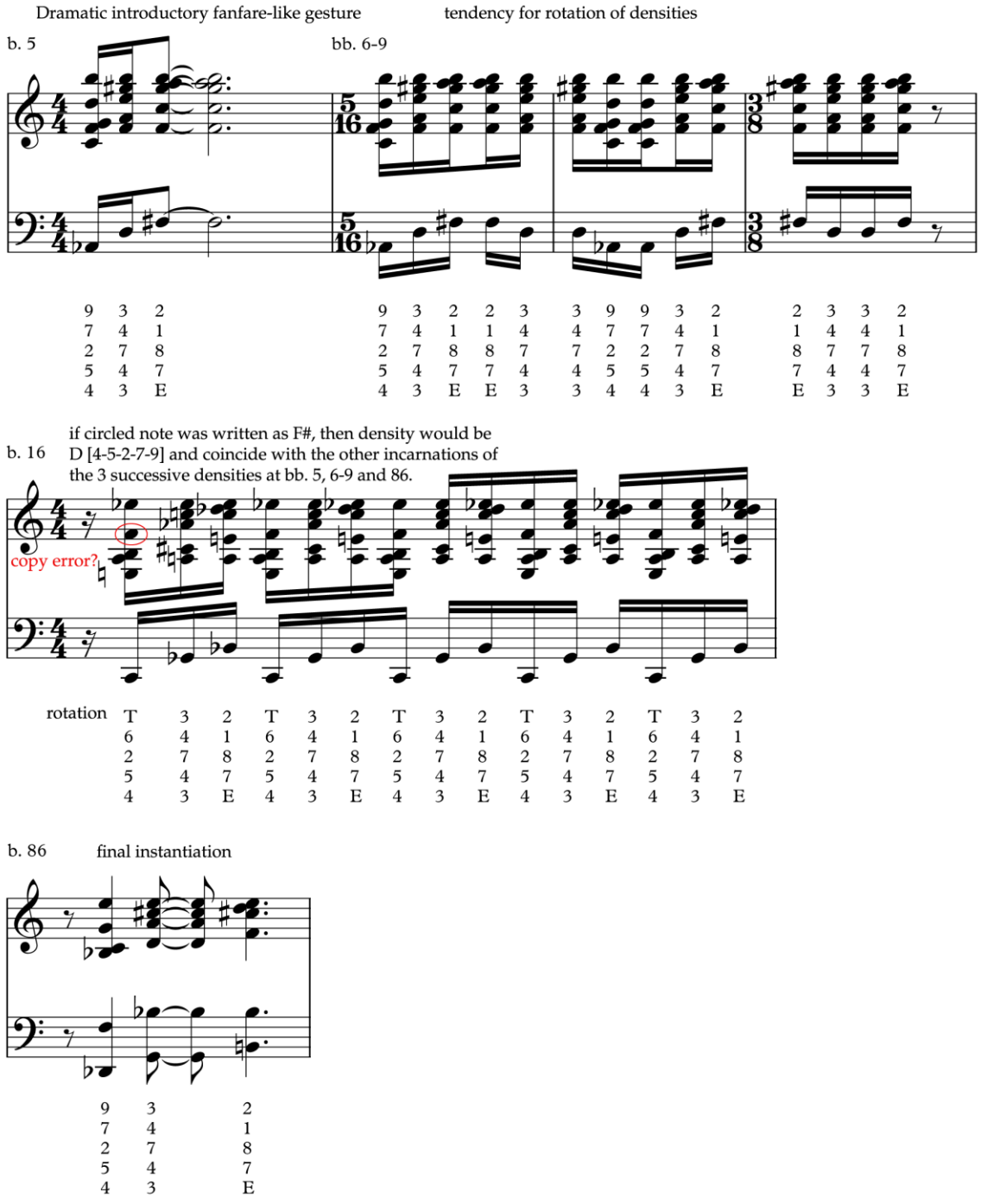
Chordal Analysis of Third Movement

Chordal analysis has inevitably fed into the previous section where I discuss the recapitulation of the themes from the "First" and "Second" movements, simply because thematic melodies are often harmonised. However, in this final brief chordal analysis I shall identify how the harmonisation of a local melodic embellishment and its sequential densities are implemented and in fact how they are susceptible to fragmental repetition. This example appears in b. 5

where 3 dissonant densities are forcefully stated in the brass and percussion, the high energy of these chords indicates a dramatic discordant fanfare-type of gesture. The sequence of these particular densities is maintained at various points within the first part of the "Third Movement". In bb. 6-8 they are placed in sequence with a tendency for rotation, as in D(4, 5, 2, 7, 9), D(3, 4, 7, 4, 3) and D(E, 7, 8, 1, 2), illustrated in (ex. 6.21). Although there is a tendency for rotation it is not entirely fulfilled, but is a few bars later in b. 16. There is however a slight problem with the certainty of one of the densities at this point. In the example, there is a (F) note (circled in red) which if had been a (F#) would produce a more consistent reading of D(4, 5, 2, 7, 9). I have repeatedly listened to the recording and attempted to isolate the (F) note to confirm its designation in the score, but the densities are performed rapidly and detached which makes it very difficult to decipher if it is a (F) or (F#). I would hazard a guess that it is a copyist's oversight and that it is actually an (F#) which would prove to be more consistent in the way Zappa had employed correlative densities throughout "MnHV". Irrespective of Zappa's unorthodox approach to composition, to have four fragmental instantiations of D(4, 5, 2, 7, 9), D(3, 4, 7, 4, 3), D(E, 7, 8, 1, 2) and for one of them to be modified from D(4, 5, 2, 7, 9) to D(4, 5, 2, 6, T) seems unusual, especially when in the latter case the readjustment of the (F) to (F#) yields D(4, 5, 2, 7, 9).

Of note, the 3 density succession incarnation between bb. 6-8 is written in the score but does not appear in the recording, consequently, we are presented with more speculation pertaining to score and recording disparity. The observation here in these few bars is of course theoretical and neatly ties in with the analysis in terms of the intended form of compositional continuity where it represents another form of the 3 density succession, but here bears no consequence in the aural as it was either not performed or subsequently edited out of the recording. Returning to the rotation fulfilment of the densities at b. 16, they are subject to this process four times and then again reappear at b. 86 with one succession of the chords played

relatively slowly in the brass. This 3 density succession is spaced at uneven distances; that is each instantiation is separated by intervening events which are proximate then long ranging; the first at b. 5, second at b. 16 and the third at b. 86. The intervening events bear no specific relation to the aforementioned succession, and so the actual succession operates as a periodic gesture.



EXAMPLE 6.21. "Third Movement" Fragmental Repetition of 3 Successive Densities.

Another fragmental repetition is in b. 19. The density struck by the tuned percussion instruments is the initiation of a texture that is subsequently set against different backgrounds. At b. 19 (**III**, 0:35) it is atmospheric adding to the quiet density in the strings, but from bb. 179-181 (**III**, 9:46) acts as an accompaniment to the disorientation of the strings swirling *glissandi* slowly motioning in a descending and ascending fashion. The differential speed in which the *glissandi* is implemented emphasises the disorientating sound of this microtonal cacophony. The attack of the chord is insistent and differs to the first by its reduced cardinality. At b. 19, the chord is built as D(E, 4, 3, 8, 3) and at bb. 179-181 as D(1, 1, 9), but although there is less of a relationship in terms of its structure, the instrumentation, rhythm and form of articulation is practically identical. The density is reinstated in its original form (D(E, 4, 3, 8, 3)) from bb. 183-186 but is now accompanying displaced textural events between low grumbling tremolos in the strings, suggestively 'remote' high pitched bells, *col legno* strings and single percussive hits. And then in bb. 237-239, the density, again in its original form, is harsh and brittle contributing to the overall intensity of the final bars. These example shows that there is an ongoing resurgence of particular musical fragments in harmonic form which are either binding sequences between disparate materials or behave as recurring events. Essentially fragmental repetition is consistent in pieces studied so far and can function quite elusively in the background or at the surface level where identification is relatively simple. Zappa was continuously regenerative and destructive with his music materials and the "Third" is a good representation of this process.

Summary

The organisation of multiple layers and the seemingly surreptitious development of forms and sequences is one of the most intriguing aspects of Zappa's music. It necessitates repeated listening in order to identify the stratification of disparate musical ideas. If we take the idea of

this clandestine approach to maintaining continuity in the compositions, we begin to discover on closer inspection and repeated listening, strong connections within the music. In the chromatic pieces, these connections are particularly deceptive because they are not always so readily identifiable. Hence, this is perhaps why, under certain conditions, the music lacks cohesion and appears uneven or disjointed. In a way Bernard's position is understandable because at times the transformation of thematic elements are often concealed to the extent that they can go undetected, as we have already observed in "Pedro's Dowry". But I would have to disagree with Bernard in that "Mo 'n Herb's Vacation" follows "unrelated themes in free succession", as indicated in this chapter, there are many examples throughout the movements of thematic repetition.

It is clear that in the "Second Movement", thematic continuity was an important consideration as the one bar theme forms the basis for the whole movement. In comparison to the "First Movement", the "Second" represents a much clearer indication of how a small idea can become a significant part of the composition. Where in the "First", the orchestrated 'guitar lick' is catalytic to subsequent musical events, in the "Second", it is an important recurring structural element that can be traced back thematically. And in the "Third Movement", although not as strong as the other two, all movements are brought together as a grand reiteration of the most important components of each. Zappa fully demonstrates his ingenuity in how he manipulates his musical resources by continually recycling musical material in the most creative way. Ultimately and most importantly, what "Mo 'n Herb's Vacation" requires is careful attention to all the details in order for one to fully appreciate the subtleties and intricacies that went into the composition.

CHAPTER 7

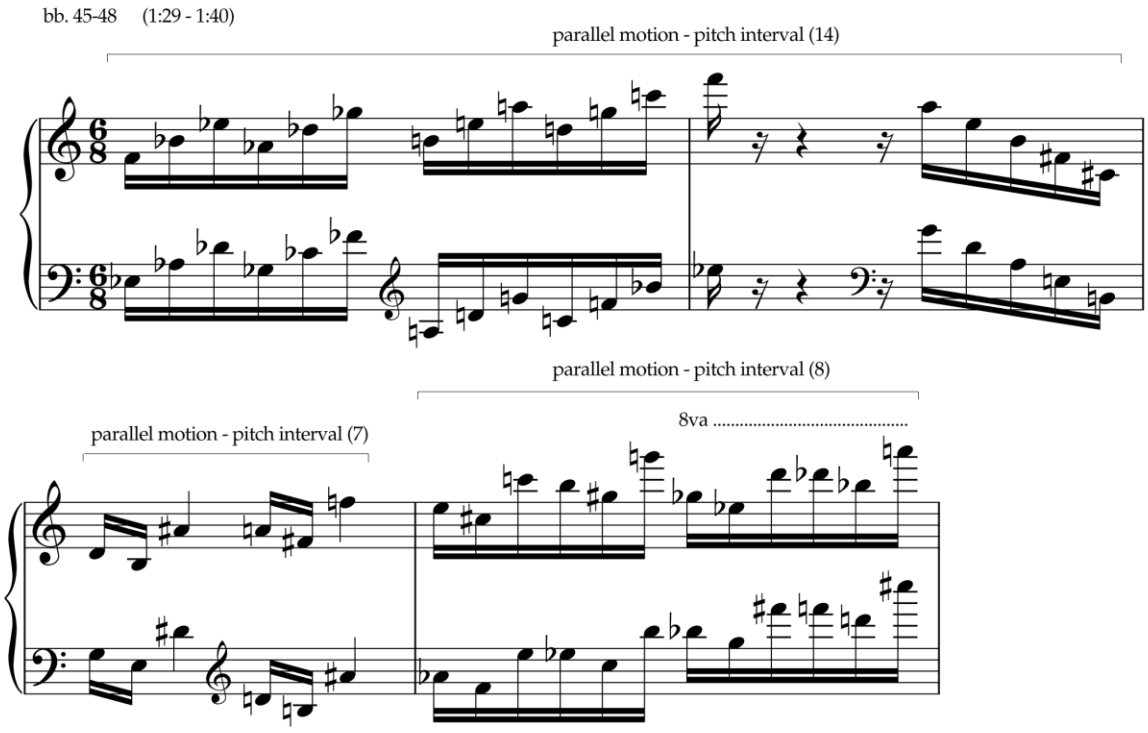
Chord Formulas and Recurring Cells

Chords Formulas

For Zappa, the construction and implementation of chords was an ongoing process of development, particularly in the chromatic pieces. How to solve the problem of chordal and melodic simultaneity in non-diatonic music occupied Zappa for many years. He devised his own method of chord systemisation (*Chord Bible*), the germination of which was mostly theoretical. And although the systemisation of chord construction represented a formula, it was not always reflected in chord successions. In other words, the *Chord Bible* was a systematic approach to a musical problem, but the manner in which the chords were consecutively employed within the music was not necessarily as methodical, as already identified in our analyses. But, on occasion when a formula does appear in chord successions, it manifests as either a concatenation of one fixed intervallic density or two alternating densities, sometimes moving in transpositions. The transpositions are essentially a result of the subordination of the accompanying density to the top line of which it must follow. The technique proves to be one of the only areas where the analyst can observe the application of a formula, in terms of successive chords. To some extent, it is possible to follow the chronological development of this technique from pieces written in the 1960s up to the early 1980s and to observe how it became more refined with each new composition. In fact, it is highly likely that the technique evolved from simpler intervallic forms of just two intervals moving in parallel motion.[1]

[1] Parallel motion in this context is a stricter form that contains intervallic distances not susceptible to deviation. For example, parallel motion in the traditional sense can be exemplified by parallel 3rd's which could be a combination of both minor and major 3rd's, depending on context. However, Zappa's application of fixed intervals is that a succession of 3rd's will always be major or minor but not necessarily both. In other words, a succession of major 3rd's can only proceed as major 3rd's, but not major and minor 3rd's.

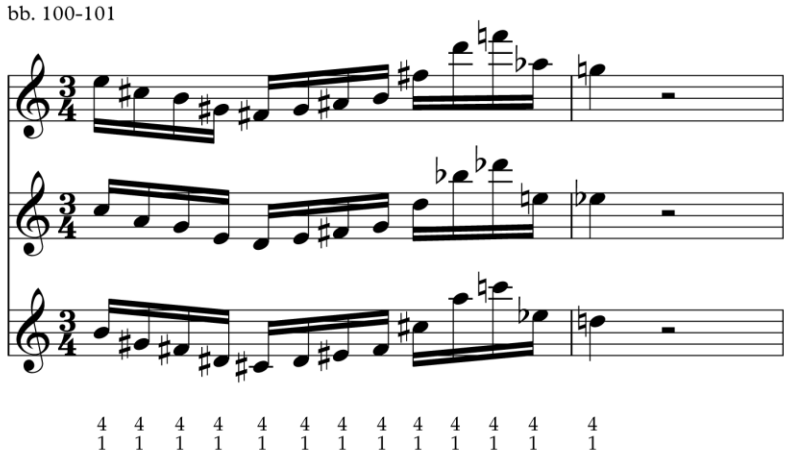
In 1968, some of Zappa's orchestral pieces were performed by the BBC Symphony Orchestra for an event that took place at the Royal Festival Hall in London. Apart from being a performance with theatrics (courtesy of members from The Mothers of Invention) intersected with a symphony orchestra, it was also a test-pilot for narratives and compositions that would later appear in *200 Motels* (1971). One of the pieces performed at the event was "The Rejected Mexican Pope Leaves the Stage", which has examples of parallel motion whereby intervallic distances are maintained across the bars. In the piano, the short sequence unfolds with parallel motion of pitch intervals (14) in bb. 45-46, (7) in b. 47 and (8) in b. 48.

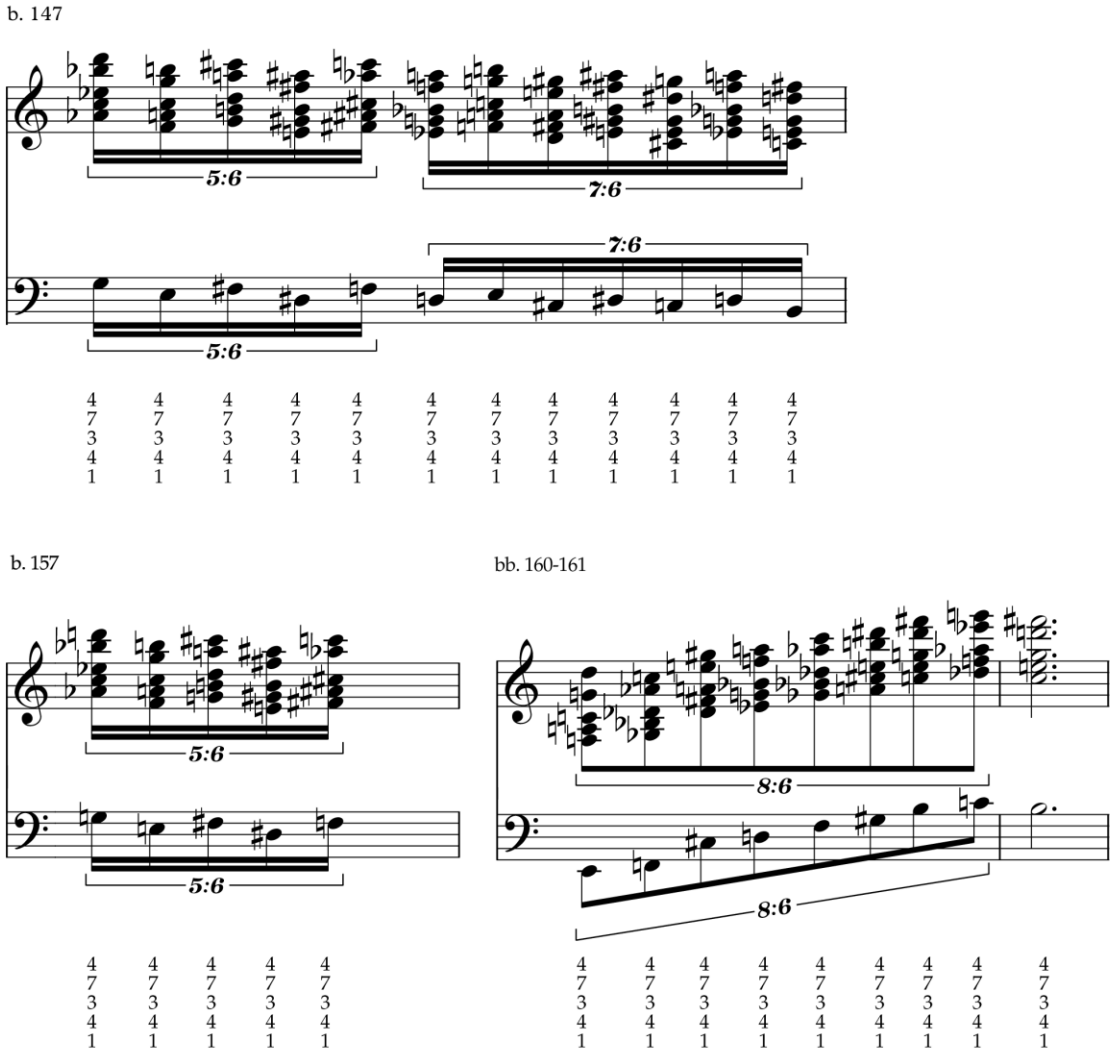


EXAMPLE 7.1. "The Rejected Mexican Pope Leaves The Stage" - Parallel Motion.

Interestingly, the piece from which this sequence is extracted, later manifested into "Dance of the Just Plain Folks" in *200 Motels*. In the latter incarnation, there are more instantiations of the technique. In b. 100, the harpsichord and *pizzicato* strings perform a melodic sequence of consecutive semiquavers in which all three lines maintain a fixed intervallic relationship

forming D(1, 4). A larger density succession occurs between bb. 147-150 (only b. 147 shown in ex. 7.2 since bb. 148-150 are repetitions) where the fixed distances yield D(1, 4, 3, 7, 4), a density that establishes a stronger sense of continuity as it is employed over a long range. Its next appearance is in the form of a 5:6 semiquaver rhythmic ratio at b. 157 and then again at b. 160 as a 8:6 quaver ratio. It should be noted that the D(1, 4, 3, 7, 4) is actually a Lydian structure and its use in this manner is quite unusual for the period as diatonic successions are generally infrequent with more examples of chromatic structures.

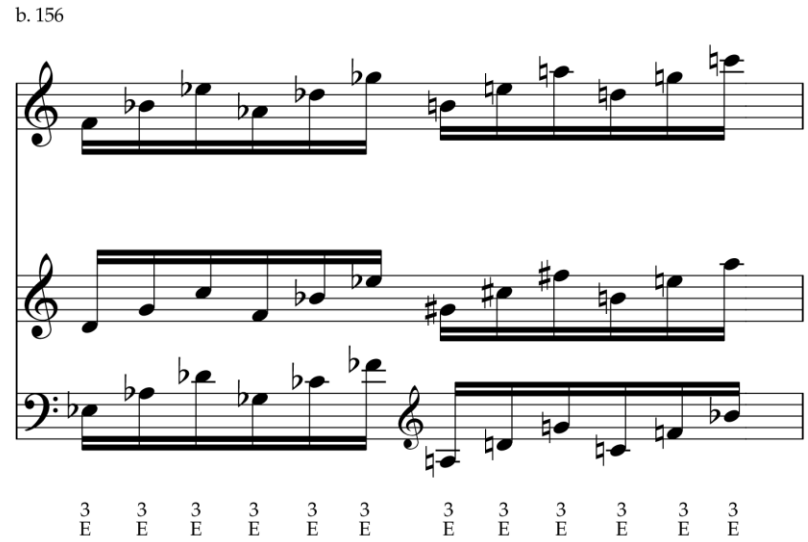




EXAMPLE 7.2. "Dance of the Just Plain Folks" Successions of fixed intervallic structures.

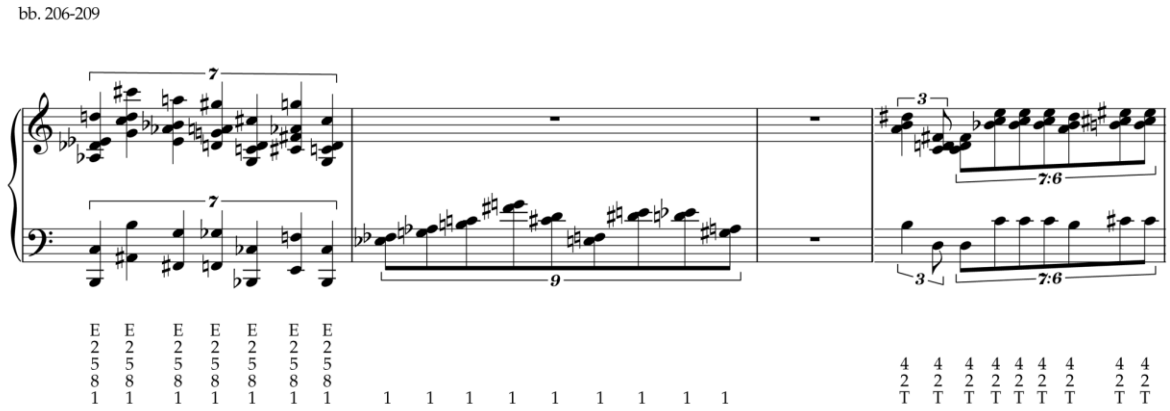
This could be seen as an early instigation of fixed scalar successions which would become systemised years later. But since this technique is more infrequent in these earlier pieces, constructing a Lydian voicing and retaining the intervallic structure of the chord over a short period of time is more probable. Essentially, Zappa would have built these structures from chord extensions rather than conceiving them as scalar. It seems that Zappa was already experimenting with unconventional forms of repetition back then, and that the fixed intervallic density succession model was to become a regular feature in his later orchestral works. This is clearly indicated by b. 156 which contains, D(E, 3), an important structure that would appear

years later in “Mo ‘n Herb’s Vacation – First Movement” and “Sinister Footwear – Second Movement” (see ex. 6. 9 in chapter 6).



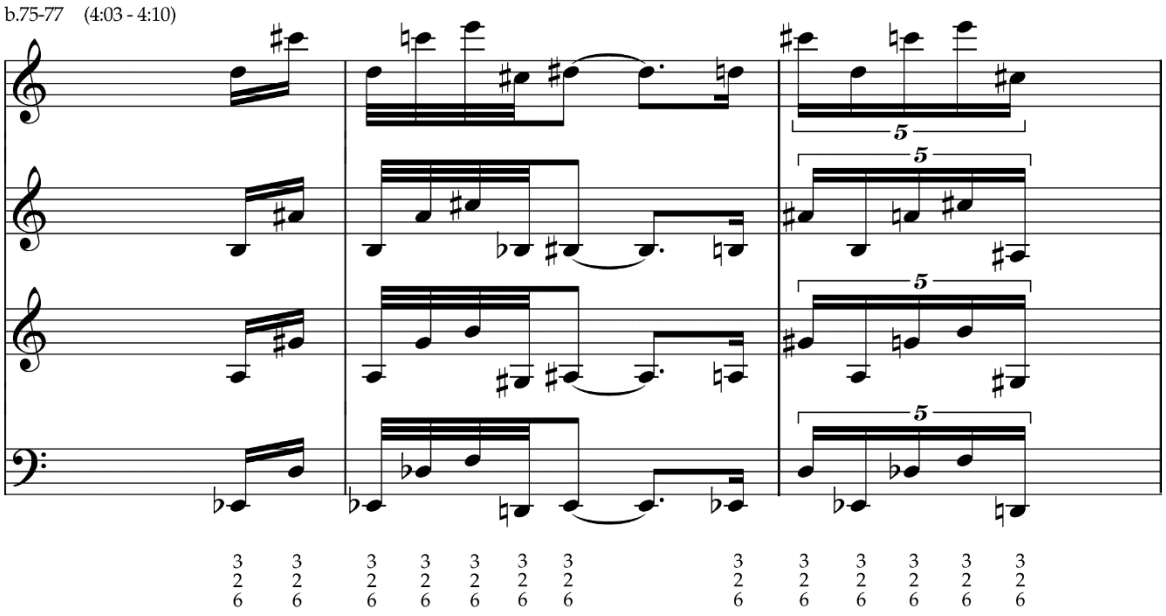
EXAMPLE 7.3. “Dance of the Just Plain Folks” piano extract from “The Rejected Mexican Pope Leaves The Stage” b. 45.

“The Pleated Gazelle” from bb. 206-209 exhibits similar consecutions. The crotchet-note septuplet beginning at b. 206 contains D(1, 8, 5, 2, E), followed by a crotchet-note nonuplet where the two melodic lines are separated by ic1, and then in b. 209 with D(T, 2, 4). Incidentally, it appears that *isomelism* would best describe an early example of the repetitive form herein of D(1, 8, 5, 2, E) at b. 206 as a crotchet-note septuplet with a re-instantiation of it at b. 341 (not shown in example) as a semiquaver-note septuplet.



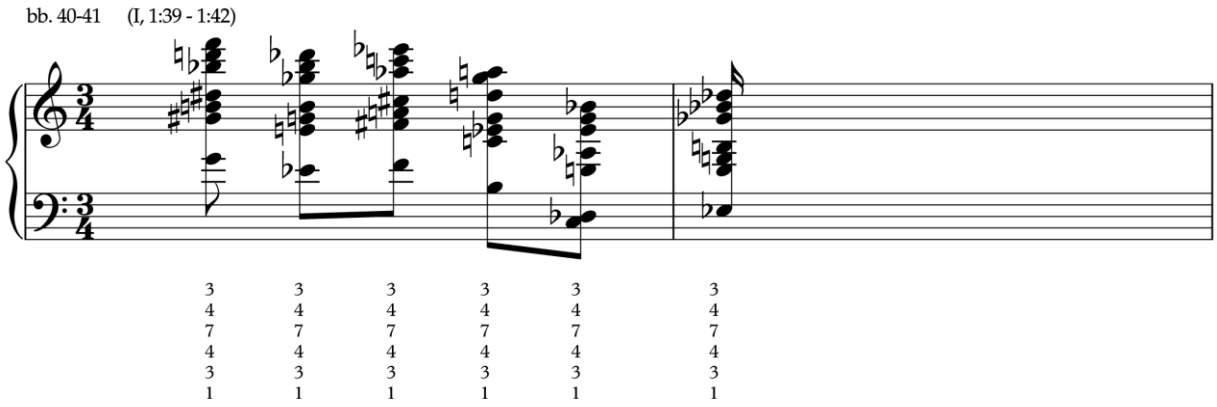
EXAMPLE 7.4. "The Pleated Gazelle". Variable successions of fixed intervallic structures.

Early forms of successively fixed intervallic densities often manifested as interjectory or transitory events. In "Pedro's Dowry" between bars 75-77, fixed intervallic successions support the top line, however, its deployment in this instance is much like previous ones, that is interjectory or fulfilling a transitory function.



EXAMPLE 7.5. "Pedro's Dowry" Succession of a Fixed Structure.

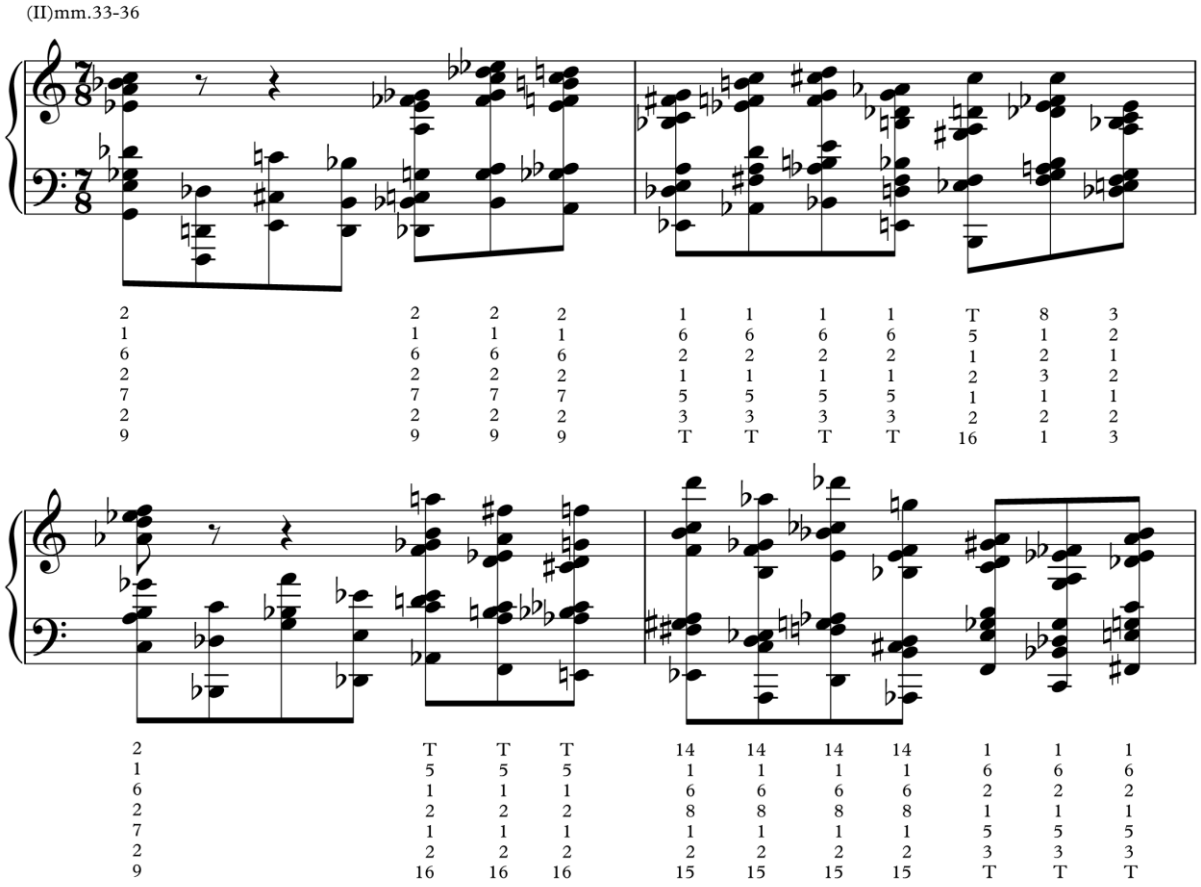
It is only in compositions such as “Mo ‘n Herb’s Vacation”, “Sinister Footwear” and “The Perfect Stranger” where implementation of successively fixed intervallic densities is relatively more prominent. In “Mo’ ‘n Herb’s Vacation – First Movement” bb. 33-34, the fixed succession D(E, 3) forms part of the melody, therefore its use in this context is less transitory and more definitive. The same density is implemented similarly in “Sinister Footwear - Second Movement” between bb. 121-127 (see chapter 6, ex. 6.9). “The Perfect Stranger” also features fixed successions conspicuously employed in support of the melody, although in the example provided its realisation is more pervasive in terms of its scalar construction.



EXAMPLE 7.6. “The Perfect Stranger” Minor Lydian (2) Fixed Structure Supporting Melody.

Alternative means of integration of the device begin to formulate in “Mo ‘n Herb’s Vacation – Second Movement” between bb. 89-93 where fixed successions are employed but change over time. For example, bb. 89-91 consist of D(7, 4, 3, 3, 1, 2, 5, 8), b. 92 D(7, 4, 3, 1) and b. 93 D(5, 1, 4, 1, 4) all of which contain the melody in the upper voice. In “Sinister Footwear – Second Movement”, between bb. 167-170, each bar consists of one density tracking the melody as follows: D(3, 7, 4, 3), D(3, 2, 5, 4), D(3, 7, 4, 3) and D(8, 2, 5, 4). By the time Zappa had composed “The Perfect Stranger”, this particular approach took on greater significance and was integrated far more extensively. Moreover, each density used in this manner was scalar

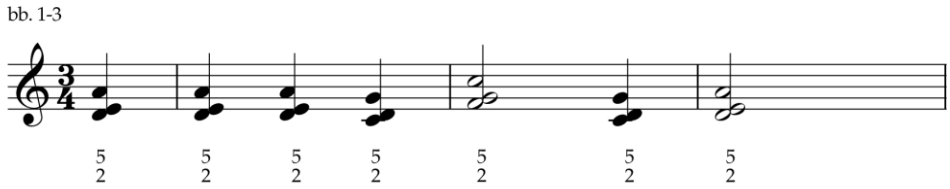
derived, illustrating a departure from the chromatic instigations of it in earlier forms. The technique is more assured and fluid in "The Perfect Stranger", and is an indication that it had evolved from fixed chromatic successions to fixed scalar ones. Furthermore, it also shows that consecutive fixed densities could be more than just local embellishments but could also function as supporting a melodic line in the top voice.



EXAMPLE 7.7. "The Perfect Stranger". Successions of fixed intervallic structures supporting the melody.

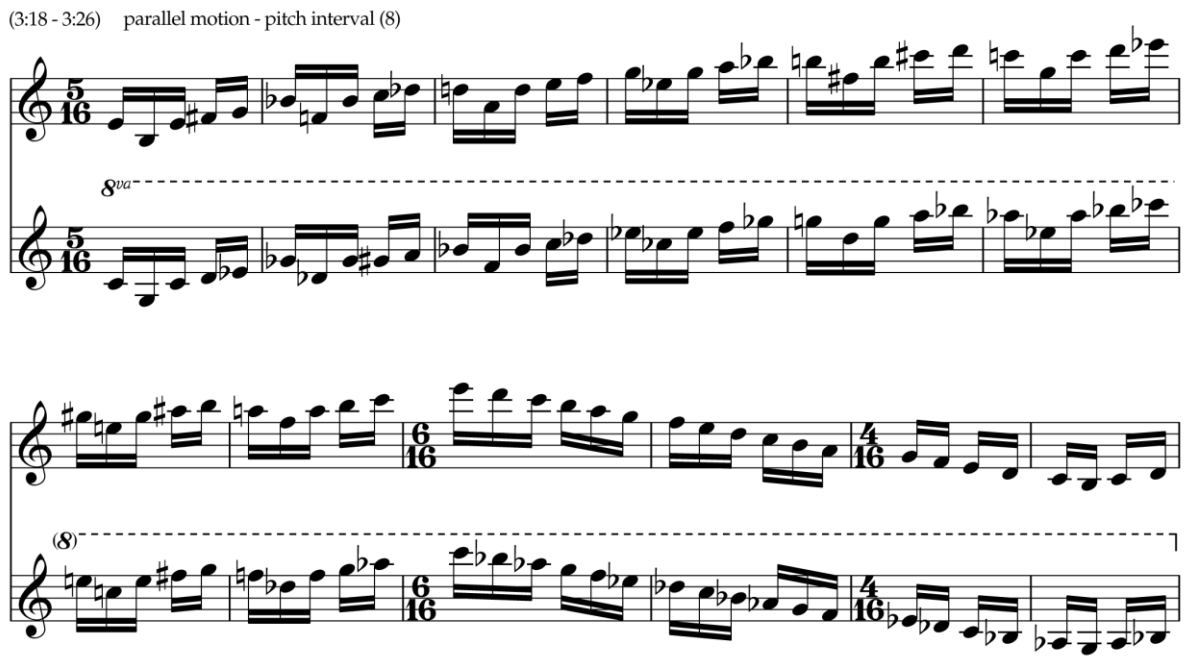
The idea that a melody could be tracked with fixed intervallic structures was not confined to the orchestral pieces and interestingly took on a slightly more accelerated evolution in the non-orchestral pieces. An early example of this is in the diatonic piece "The Idiot Bastard Son" from the 1968 album *We're Only In It For The Money*. In the first 3 bars of the piece, a short

succession of sus2 chords unfolds along with the melody. The sus2 chord configured as a *Chord Bible* member using Clement's nomenclature would read, D(2, 5) and in this case, incubates both the harmony and melody.



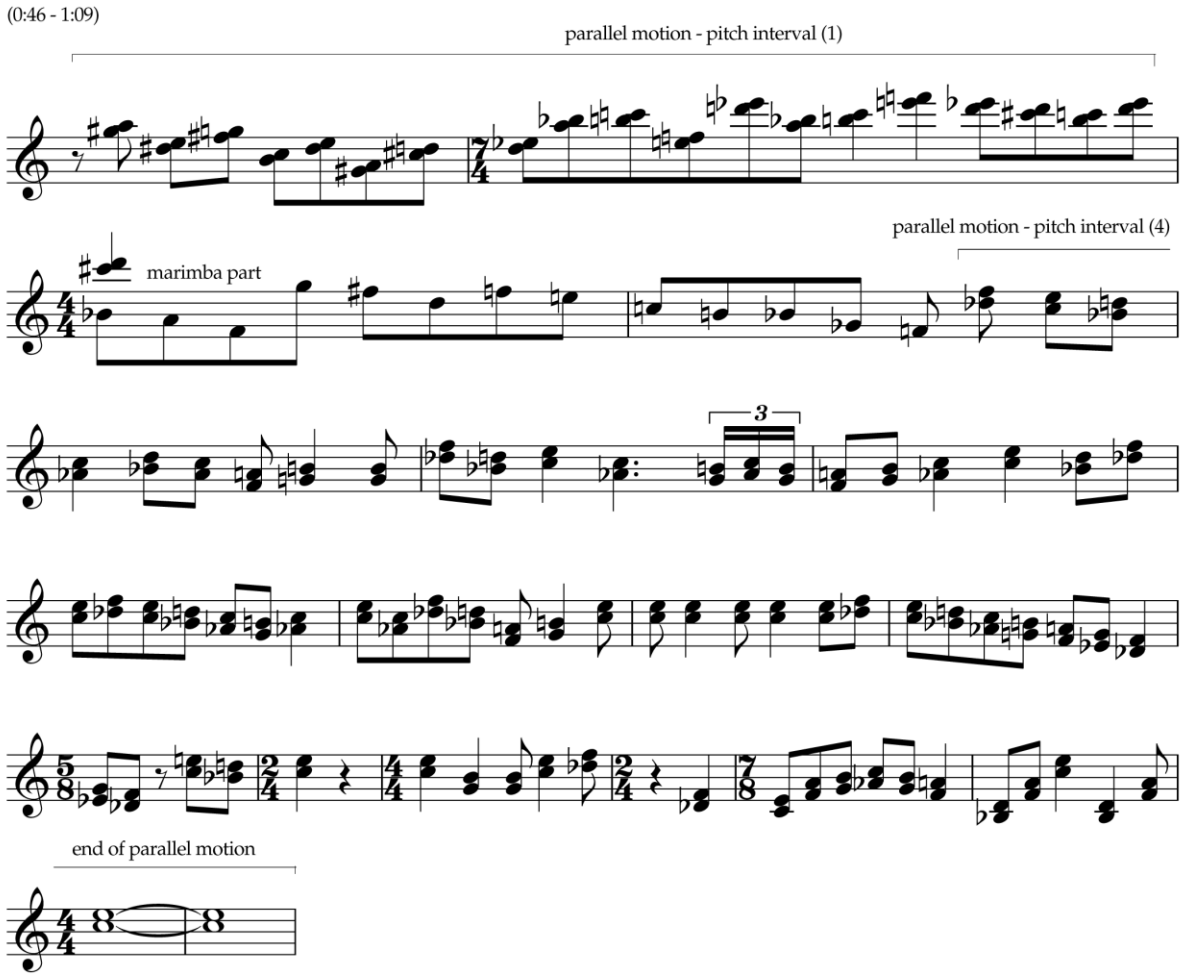
EXAMPLE 7.8. "The Idiot Bastard Son" Main Theme.

A more elaborate example is "Echidna's Arf" from *Roxy & Elsewhere* (1974), where the melody, in the first instance, is performed by the clavinet. It is then repeated with the trombone doubling the clavinet but with an overdubbed clavinet playing the melody harmonised at pitch interval (8). The pitch interval (8) harmonisation is maintained throughout the melody, and in combination with the harsh attack of the two clavinets, notwithstanding the subtle softening in the trombone, produces a shrilling texture. The tracking at pitch interval (8) is quite extensive in this example and provides an interesting colour by way of the consecutive execution of the melody from two different starting points.

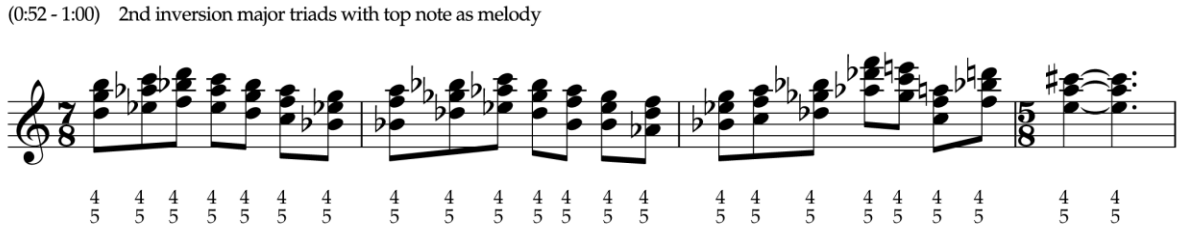


EXAMPLE 7.9. "Echidna's Arf" Parallel Motion - Pitch Interval (8).

Further exemplification of this device is from the *Zappa in New York* (1977/78) album version of "Pound for a Brown". Zappa incorporates close intervallic tracking at the stop points when all instruments apart from the keyboards drop out. At this point, both keyboard instruments play the melody a semitone apart, which is dissonant yet inferring of the comedic qualities we encountered in "Mo 'n Herb's Vacation". During the middle section, the melody in the keyboards is harmonised by a distance of pitch interval (4). The entire melody is tracked in this way, a parallel form that gives a distinct sound of which is also captured in "Interlude from Fembot in a Wet T-Shirt Contest" from *Joe's Garage* (1979). The "Interlude from Fembot in a Wet T-Shirt Contest" represents one of the most extensive uses of fixed intervallic successions in the ECE pieces. The melody takes the form of the top note of a 2nd inversion major triad which is unaltered throughout.

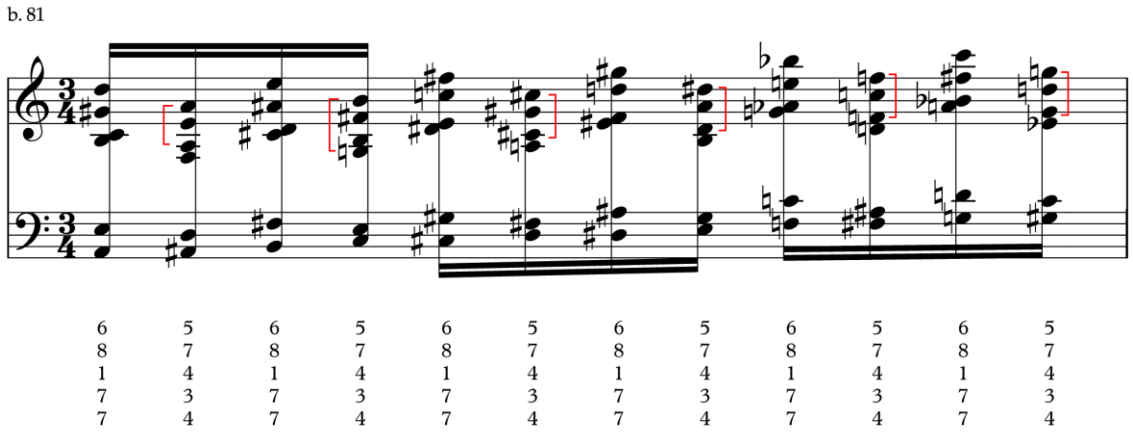


EXAMPLE 7.10. "Pound for a Brown" (Version from the album *Zappa in New York* 1978) - Parallel Motion.



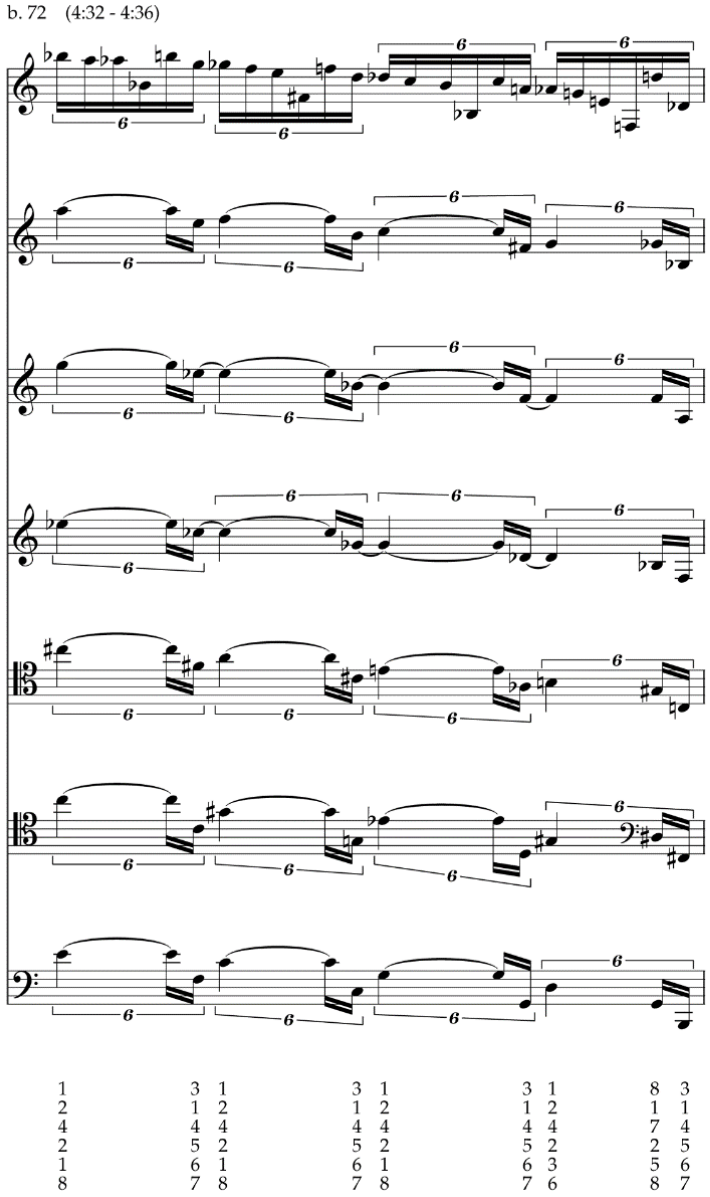
EXAMPLE 7.11. Extract from the Interlude from Fembot in a Wet T-Shirt Contest.

Returning to the ACE pieces we can observe another example of formulaic use of chord successions with the alternation between two differently adjusted verticalities. In a similar way, the development of this technique evolved from predominantly chromatic structures to scalar ones. “Bob in Dacron” is an example of this transitory phase where chromatic and scalar structures alternate. The brackets indicate note repetitions within a chord which was something Zappa avoided with chord construction in later compositions.



EXAMPLE 7.12. Bob in Dacron.

Another example of this alternating form between scalar derived and chromatic structures is in b. 72 from “Mo ‘n Herb’s Vacation – First Movement”.



EXAMPLE 7.13. "Mo 'n Herb's Vacation – First Movement".

In the above examples, a theoretical approach to the construction of chords is prevalent. For Zappa, the formation of chords with specified intervallic distances was an important factor in establishing more control and continuity, particularly in the chromatic pieces. Without employing some degree of predetermined theory, maintaining continuity using dense successions of chromatic chords could present challenges. There must have been a point in Zappa's compositional development where he needed to develop some kind of method to

overcome those compositional difficulties. Without the use of serial music grammar, out of necessity Zappa devised practical solutions to the potential cul-de-sac of maintaining continuity in the chromatic works. Successive fixed interval structures and the *Chord Bible* both seemed to have been useful solutions to the problem.

Recurring Cells in the Chromatic Works

In his 2009 thesis, *A Study of the Instrumental Music of Frank Zappa*, Clement analysed the way the composer's non-tonal melodies appeared to exhaust the 'full chromatic'. This was done by collating all the notes of a given phrase or melody and examining them as unordered pitch classes which illustrated the use of all 12 notes.[2] I have attempted to take this observation a step further by examining recurring cells within the chromatic melodies. Although a high concentration of chromatic saturation may occur in a given phrase I shall focus in on smaller groups of notes that are ubiquitous in varying incarnations. On close inspection of some of these non-tonal melodies, common features in the way notes are configured and grouped are revealed, which can be traced across multiple pieces of music. These are structural elements that can be at once prominent and decorative depending on the construction of the melodic line and how they are observed. On the surface, groups of cells appear to undergo constant transformation as they interact with other notes, yet deceptively share close proximity in that they can be reducible to a common factor.

The candidature for the 4-note cells should illustrate the recurrence of a specific note collection, a sort of composer's "calling card" that gets preferential treatment as a means for the construction of chromatic melodies. But how to reduce it to a common form lends itself to

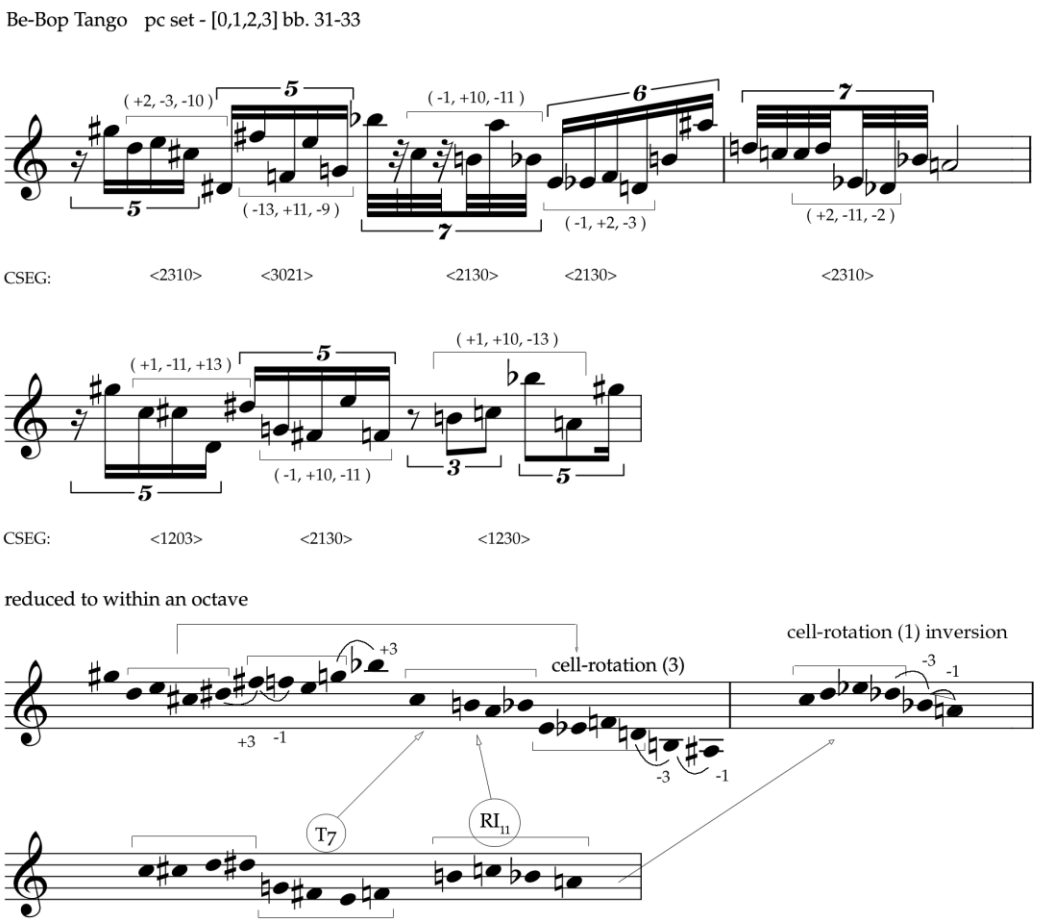
[2] In these cases each note within a given larger phrase has equal value, much in the same way as twelve tone music, except of course for one difference, the exhaustion of all 12 notes was not an imperative for Zappa. This is interesting to note since although Zappa did not employ twelve tone music per se, the concept of it occurs in his works. Clement stated that, "Zappa never employ[ed] a twelve-tone row", yet, "a degree of chromatic saturation [was] a key characteristic of much of his chromatic works", Clement (2009, p. 182).

the induction of pc set theory nomenclature. There are two common 4-note cells reducible to prime forms [0,1,2,3] and [0,1,3,4]. Reference to the note groups under study will consist of the terms, cell and pc set, interchangeably. The interchangeability of the terms cell and pc set is not significantly distinguishable, 'cell' is merely a way of identifying a recurring note collection that would have been part of Zappa's repertoire for melodic construction, and 'pc set', how it can be reduced to a prime form for the sake of classification utility. So the cell is the group of notes as it unfolds within the music, the *ordered set* if you will, and its pitch class set is the abstractive representation. Although the cells are ubiquitous as varying self-contained 4-note collections, they are often connected to other notes within a given melody by specific recurring interval successions. Often a 4-note cell is followed by either a descending or ascending ic3 and ic1 succession as illustrated by small curves and a (+) or (–) symbol in the examples. The distinction is acknowledged in each analytical excerpt but also takes into account; that whether the cell is prominent or not in any given passage, it is always undercurrent in holding that passage together as a connective device.

In the examples I introduce "cell-rotation" which is simply a way to show how these 4-note cells are sometimes rotated. For example, in (ex. 7. 14), the first segmentation of a 4-note cell in b. 31 is (D, E, C#, D#), and if we rotate these notes we would generate the following, (E, C#, D#, D), (C#, D#, D, E), (D#, D, E, C#) and then back to the start for (D, E, C#, D#) and so on. The cell rotation in b. 31 is written as "cell-rotation (3)", the (3) represents the number of rotational manoeuvres within the "ordered" notes of the cell in relation to the original. In this case, (D, E, C#, D#) has become (D#, D, E, C#) but transposed at (E, Eb, F, D) on beat 4 of b. 31. The last cell in b. 33 (B, C, Bb, A) appears in b. 32 as a "cell-rotation (1) inversion", this comes about by one rotational manoeuvre (C, Bb, A, B) and the inversion of the cell (C, D, Eb, Db). These observations provide another method for establishing continuity within the structural elements of these extracts.

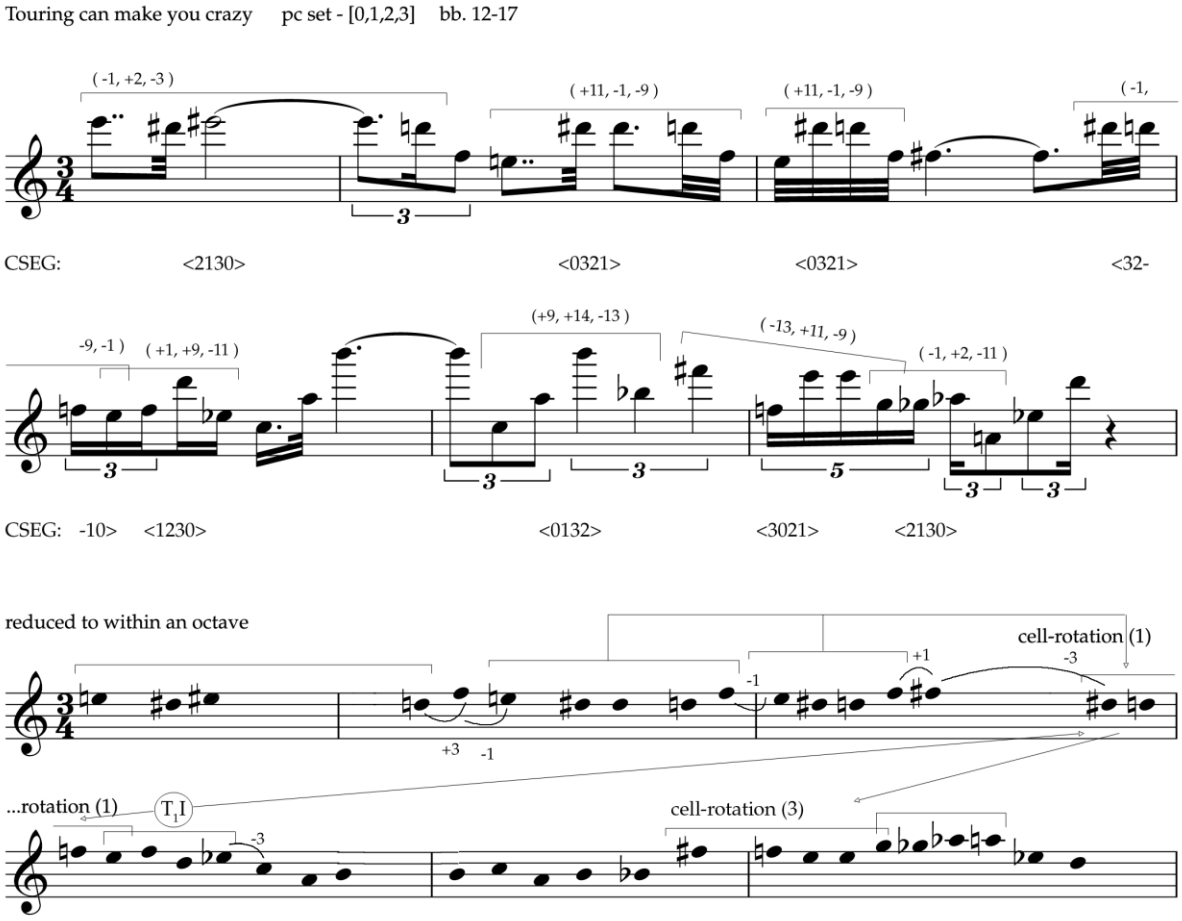
The cells are extrapolated in a number of ways across the selected pieces and although the pitches and durations within them are not fixed, the reducible interval classes are, in reference to the set class interval vector. For the cell permutations, I shall use *Contour Segment* analysis as one way to illustrate their varying transformation. All the examples will show the extracts as they appear in the written score but also reduced to within an octave. This will allow for the simultaneous observation of contour and a more readily identifiable representation of the cells in various incarnations. I have employed a loose application of these analytical techniques to provide a useful way of categorising variance and recurrence. Ultimately, the aim is to illustrate the cells as being ubiquitous and germinal to variations, but also to identify a penchant for certain melodic structures within the chromatic pieces.

The interval vector of each pc set is an important consideration in all this as it illustrates the multiple ways that each cell is manipulated in terms of intervallic variance. The intervallic structure of the first cell in its prime form [0,1,2,3] consists of consecutive semitones, this incarnation of the cell is seldom employed and is more often seen where notes are rearranged and displaced by octaves (ex. 7.16). This process is quite exhaustive in "Be-Bop Tango", where the cell is defragmented by successive wide intervallic distances. The wide intervallic leaps between the notes polarise the pitch space which detracts from the relatively simple reducible 4-note chromatic cell.



EXAMPE 7.14. "Be-Bop Tango" 1984 Munchkin Edition – Variations of Prime Form [0,1,2,3].

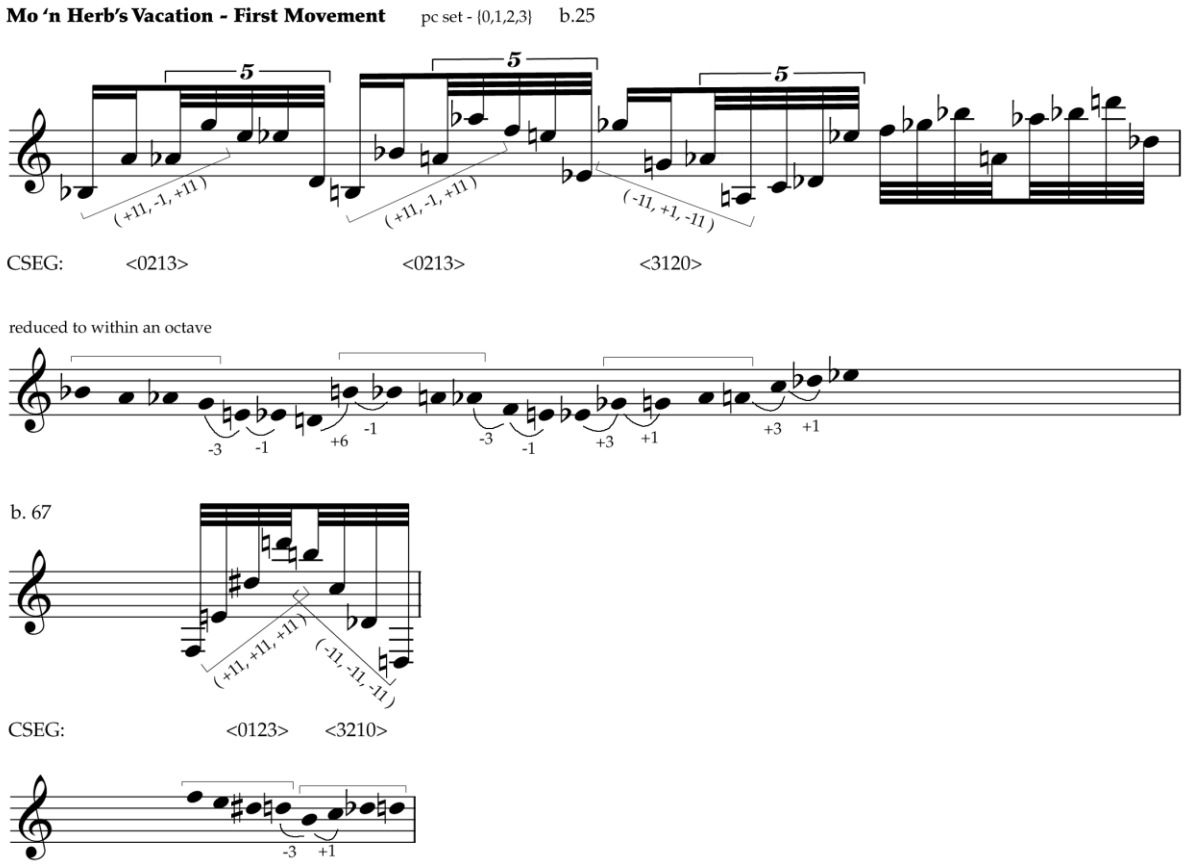
In an extract from "Touring can make you crazy", bb. 13-14, the two illustrated cells (E, D#, D, F) are subject to cell-rotation (1) at the end of b. 14 and the beginning of b. 15. The second cell in b. 15 is an inversion at T_1 of the predecessor, which is then followed in bb. 16-17 with a transposed cell-rotation (3). There is strong interconnectivity in this example with consistent rearrangement in the cells generated by rotations and inversion where practically every cell is interrelated by some form of permutation.



EXAMPLE 7.15. Touring can make you crazy.

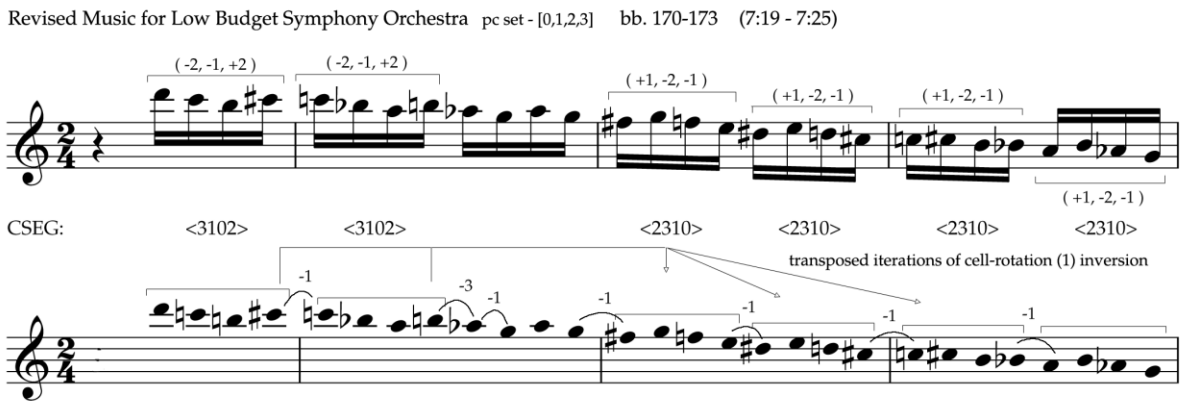
The contour of the selected melodic excerpts is of great importance as it illustrates the means by which Zappa maximised resources. By displacing the notes of the cell by octaves, the composer was able to generate variation that was at once connected and defragmented. The cell can be de-characterised from its prime form incarnation of [0,1,2,3] depending on how its intervals are placed, so although both examples are related, interval augmentation makes the relationship less perceptible. An example of consistent octave displacement of [0,1,2,3] is in "Mo 'n Herb's Vacation – First Movement". The displacement is far reaching with b. 67 covering a range of 33 semitones from the first and last note of each permutated set, which is a substantial difference to its prime form range of only 3 semitones. This extrapolation into a wide pitch space is fundamental in the way Zappa constructed his melodies. It is an interesting

process of employing intervallic instability by simple procedures, particularly with this cell which in its prime form and as a successive sequence of notes is intervallically homogenous yet is manipulated in such a way as to yield multiple permutations across many pieces of music.



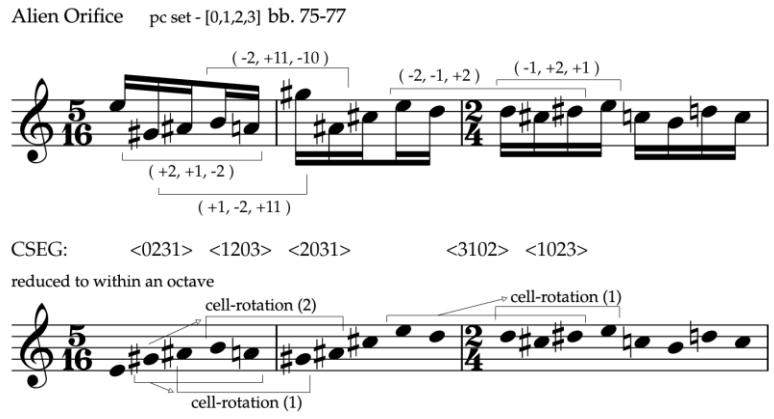
EXAMPLE 7.16. "Mo 'n Herb's Vacation – First Movement".

In the last few bars of "Revised Music for Low Budget Symphony Orchestra", the cell appears as a prominent feature and is confined to successive reiterations of (-2, -1, + 2) and (+1, -2, -1). The first two consecutive sets in bb. 170-171 become subject to cell-rotation (1) in bb. 172-173 with the last 4 sets transposed and inverted. This incarnation of the cell differs to the other examples hitherto because here each one is within an octave and does not occupy a large area of pitch space.



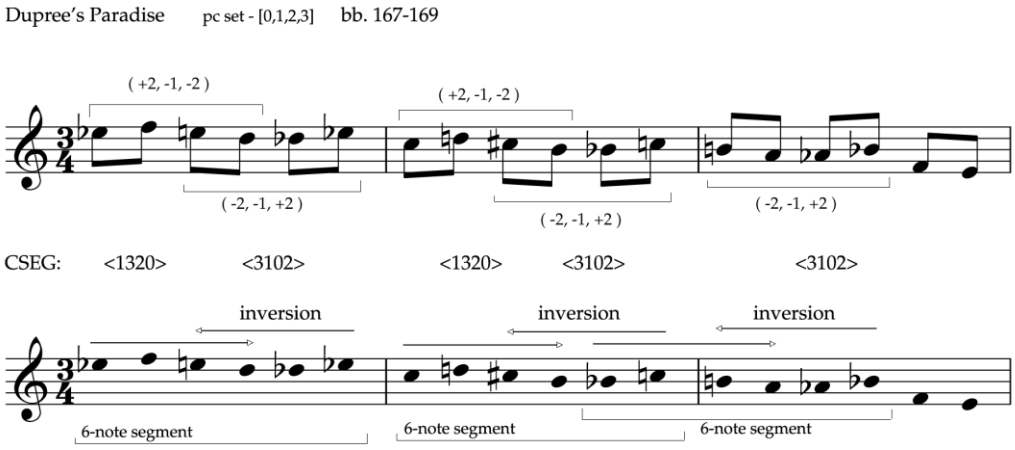
EXAMPLE 7.17. "Revised Music for Low Budget Symphony Orchestra".

In some cases the succession proliferates the cell where multiple starting points of it can be observed. Essentially, the cell can have a tendency to propagate the analysis if the note succession permits. Concurrent instances of the cell unfold creating a network of embedded successions of the 4-note cell. Demonstrative of this is (ex. 7.18), in an extract from "Alien Orifice"; the first cell (G#, A#, B, A) is rotated in each successive iteration in bb. 75-76, (A#, B, A, G#) and (B, A, G#, A#), as well as a further two iterations thereafter, (E, D, C#, D#) subject to one rotation, (D, C#, D#, E). In addition, (E, D, C#, D#) is a T_4 inversion of the first cell at b. 75 (G#, A#, B, A). This is an illustrative example of consistent rotation of cells generating a strong localised area of connectivity.



EXAMPLE 7.18. Alien Orifice

In a passage from “Dupree’s Paradise”, there are several overlaps of the cell with each one contained within an octave instead of the usual engulfment of pitch space. In b. 167, overlapping occurs with the central notes (E) and (D) acting as a pivotal point between two instigations of the cell. If the entire bar is read forwards then backwards, all 6 notes of the bar can be seen to form two sets: the first 4 notes (Eb, F, E, D) and the last 4 notes (E, D, Db Eb), the latter of which is an inversion of the first if read in reverse, (Eb, Db, D, E). The same process occurs in b. 168 with (C, D, C#, B) and its inversion (C, Bb, B, C#). It is interesting to note that in b. 168, the hitherto observed overlapping is not just confined to the two cells but also occurs with the entire 6-note segment as a whole. The segment intercepts at the last two notes of b. 168 to go on and form another instigation that continues into b. 169. So instead of the segment stated at the beginning of the bar as in the prior 2 instantiations, it now begins on the last beat of b. 168 and continues into b. 169 while incubating the same two embedded mirror-imaged cells.



EXAMPLE 7.19. “Dupree’s Paradise”.

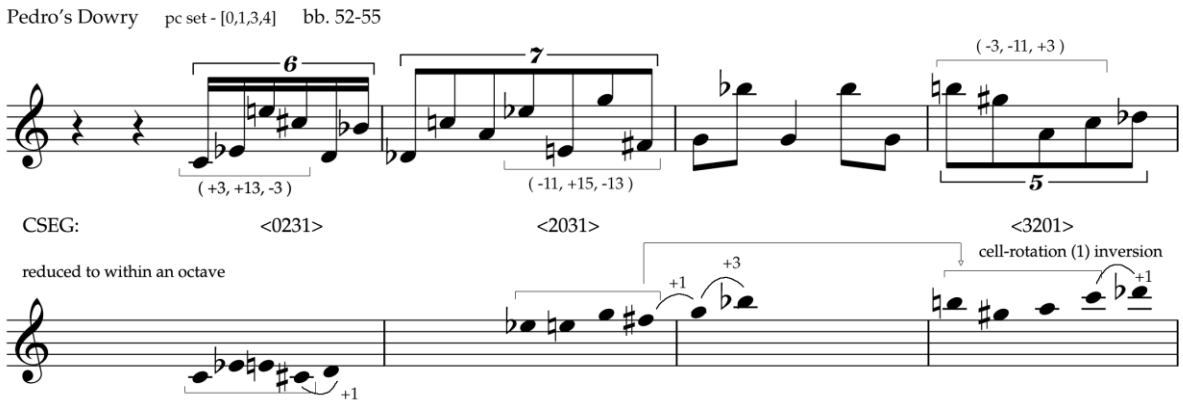
[0,1,2,3] Permutations in selected pieces			
Be-Bop Tango			
(+2, -3, -10)	(-13, +11, -9)	(-1, +10, -11) x2	(-1, +2, -3)
(+2, -11, -2)	(+1, -11, +13)	(+1, +10, -13)	
Touring can make you crazy			
(-1, +2, -3)	(+11, -1, -9) x2	(-1, -9, -1)	(+1, +9, -11)
(+9, +14, -13)	(-13, +11, -9)	(-1, +2, -11)	
Mo 'n Herb's Vacation – First Movement			
(+11, -1, +11) x2	(-11, +1, -11)	(+11, +11, +11)	(-11, -11, -11)
Revised Music for Low Budget Symphony Orchestra			
(-2, -1, +2) x2	(+1, -2, -1) x4		
Alien Orifice			
(+2, +1, -2)	(+1, -2, +11)	(-2, +11, -10)	(-2, -1, +2)
(-1, +2, +1)			
Dupree's Paradise			
(+2, -1, -2) x3	(-2, -1, +2) x3	(-1, +2, -3)	(+2, -3, +2)
(-3, +2, -1)			

EXAMPLE 7.20. Tabular Sample Presentation of Permutated Set [0,1,2,3].

The above tabulation represents a sample that illustrates the sets within the extracts herein. Some permutations are repeated while others are subject to 'pitch space' (not 'pitch class') alteration. The intervallic succession of (-13, +11, -9) is found in both "Be-Bop Tango" and "Touring can make you crazy". And (+1, +10, -13) from "Be-Bop Tango" is presented as a retrograde inversion in "Revised Music for Low Budget Symphony Orchestra" as (+1, -2, -1). Although there is no strong preference for any particular permutation across the selected pieces there is one that is relatively ubiquitous and is found in "Revised Music for Low Budget Symphony Orchestra", "Alien Orifice" and "Dupree's Paradise". Permutation (-2, -1, +2) is found in all three pieces but also appears as an inversion (+2, +1, -2) in "AO" and a retrograde (+2, -1, -2) in "DP". Rather than reveal preference for a particular permutation, this observation illustrates how a simple cell can be developed and varied. A mathematical tenet dictates that there can only be 24 permutational orderings of 4 different numbers, and that in this case, the 4 numbers are represented by the pc set [0,1,2,3].

However, with musical notes, we can also account for pitch space variance which generates a higher yield of musical permutations of the pc set, for instance, two permutations may share the same pitch class but not the same pitch space as in (+11, -8, +23) and (+11, -20, +11). This provides a greater number of possible permutations for the composer to explore. In this context, Zappa is an interesting case because while his music can be seen to convey maximalist tendencies, other times it exhibits a resourcefulness, that is essentially a maximisation of available resources.[3]

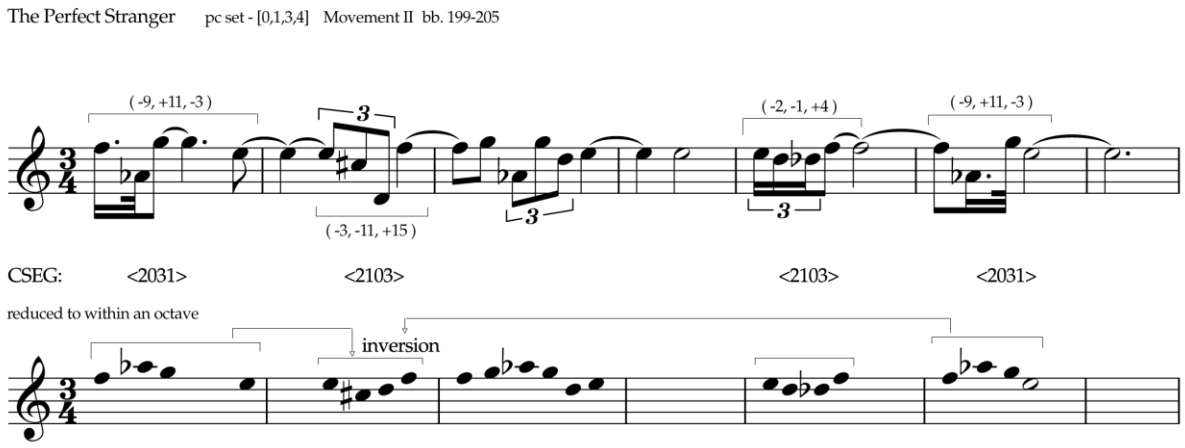
Prime form [0,1,3,4] is another example of a frequently used 4-note collection often manipulated around two minor 3rd intervals a semitone apart. In "Pedro's Dowry" bb. 52-55, there are two examples of this permutation of the pc set.



EXAMPLE 7.21. "Pedro's Dowry" Prime form [0,1,3,4].

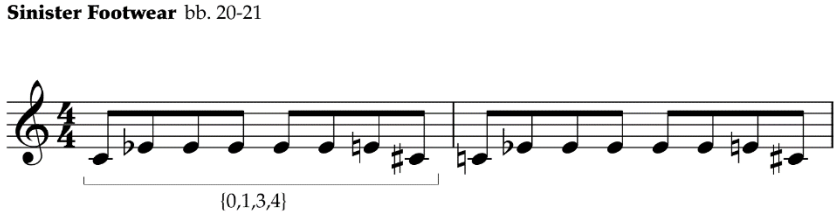
Although altered in pitch space, the minor 3rd intervals a semitone apart occur as prominent parts of the melody from "The Perfect Stranger". As discussed in chapter 4, the main theme is subject to isomelic variation throughout and in (ex. 7.22) one of the variations yields 3 instantiations.

[3] See Delville and Norris (2005).



EXAMPLE 7.22. "The Perfect Stranger" Prime form [0,1,3,4].

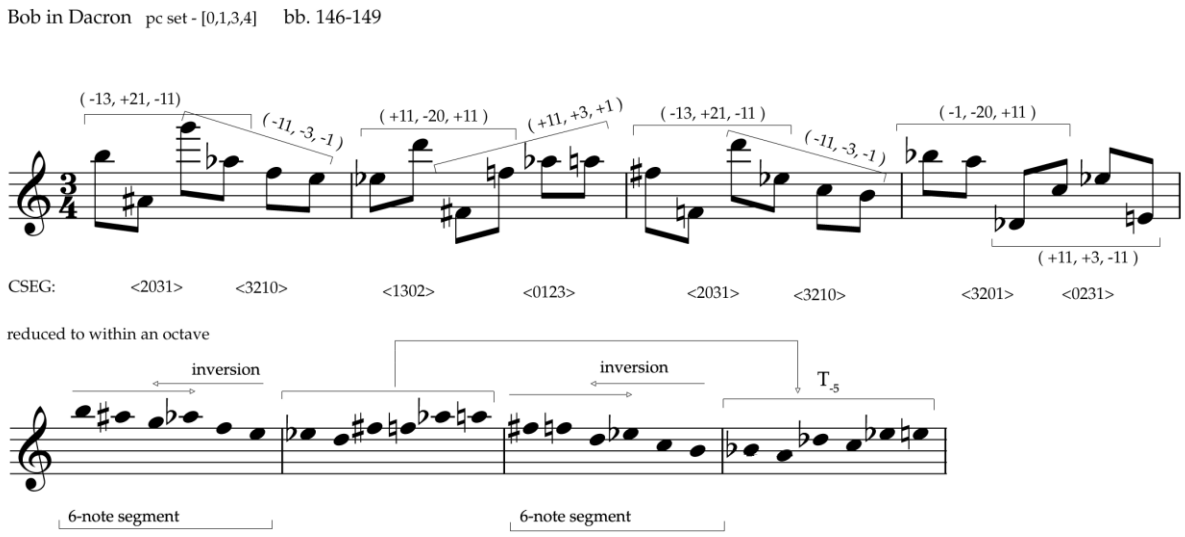
The two minor 3rd intervals a semitone apart are a particular focus in many of Zappa's pieces and part of this reason could be to do with the composer's interest in the Minor Lydian scale which inherently contains two minor 3rd's a semitone apart.[4] This particular incarnation of [0,1,3,4] was of significance for Zappa because it appears in many of his pieces and in fact is part of the main theme of "Sinister Footwear" where the cell is stated from the outset and developed.



EXAMPLE 7.23. "Sinister Footwear". Prime Form [0,1,3,4].

[4] This would be the Minor Lydian (1) scale. It is also useful to note that the 2 minor 3rd intervals placed a semitone apart could also be attributed to an octatonic derivation.

In “Bob in Dacron”, pc set [0,1,3,4] unfolds by the minor 3rd interval surrounded by semitonal activity. Consistent overlapping of the cell occurs which yields various permutations. While exploitation of the various intervallic possibilities of the pc set corresponds to the interval vector <212100>, the CSEG further illustrates contour as a direct correlation with intervallic variance. An interesting development occurs whereby observing each bar as a 6 note segment we see two cells converge much in the same way as in the “Dupree’s Paradise” example above. In b. 146, the first 4 notes outline the cell, and reading in reverse from the last 4 notes of the bar is its transposed inversion, yet again displaying the overlapped mirror image effect of two cells. In between this development in b. 147 and b. 149 are two corresponding 6-note segments with combined permutations of the two cells at T_{-5}.



EXAMPLE 7.24. “Bob in Dacron”, Permutations of pc set [0,1,3,4].

The manner in which these 4-note cells are extrapolated is suggestive of more than an inessential connective device. In the selected examples, there is a concerted effort to manipulate certain groups of notes, raising the cells to the level of important melodic structures. Our analysis sheds some light on the strong possibility that this is the case, however it does not

prove that Zappa was specifically implementing a 4-note chromatic cell per se, in fact it is highly unlikely. What it does suggest is that the designated cell, formed a contributory part of the process of developing melodic ideas. In addition, apart from facilitating the means to make correlations within a broader context, the surveillance of this 4-note cell provides a useful way of analysing an important recurring structural component. It also signifies a habitual tendency or preference for the manipulation of certain note groups within the chromatic melodies. While the pitch class sets remain invariant, the mathematical derivations of a given 4-note group in tandem with pitch space manipulation, rhythmic variety and orchestration, renders the sets full of potential for extensive and creative development.

CHAPTER 8

Listening Challenges and the Conceptual Framework

In this chapter I shall align Zappa's conceptual framework with examples of its function within specific pieces of his music. This chapter is an important supplement to the analyses in this study and complements the structural analysis by drawing together stronger conclusions from both compositional theory and the composer's conceptualisations. Zappa's approach to composition was unique in that it was free from the dictates of any one style and seemed to be in a constant state of evolution. This is one of the reasons his music can be difficult to listen to as it does not fulfil many of the expectations that some listeners are accustomed to. This is an area I explore in the first part of this chapter in order to offer the reader a strong case for why Zappa's music presents listening challenges and how a better understanding is possible by acknowledging the conceptual framework.

Listening Challenges

Zappa's fans tended to gravitate towards the non-orchestral recordings, preferring the more 'rock' orientated music. This is exemplified by the limited number of orchestral albums sold in relation to the non-orchestral albums.[1] In discussing this issue, Zappa stated that the production of an orchestral album was expensive and that invariably the project was destined to be a financial loss. Gauged against the expenditure needed to hire copyists, a large orchestra, conductor, venue, recording/manufacturing of the album and the actual financial return once the album had been marketed and released, one can see why. In fact, there were only 6000

[1] In Simms et al. 1990. 'They're Doing the Interview of the Century – Part 2', *Society Pages*. Zappa stated at the time that, "the sales of the orchestral albums is very small, meaning there is a very small portion of the audience that's even interested in that kind of stuff".

copies pressed of the *London Symphony Orchestra Vol. 1* album in 1983, a moderate figure compared to the average album sales of Zappa's other music.[2]

> If you were a classical composer and you sold 50,000 albums, you'd be a hero. I mean, the regular pop industry spits at 50,000 records. I regularly do 50,000 records. The only album I ever had that was in the million plus category was Sheik Yerbouti and the only reason that it sold that much is because the song "Bobby Brown Goes Down" which could never be played in the U.S., was a hit all over Europe. The bulk of those sales were outside the U.S. so it was an unpredictable fluke. Usually my record sales are in the 50,000 to 300,000 range depending on what the content of the album is.[3]

It seems that the 'content' of each album determined how it was consumed and by whom and as Zappa's oeuvre is so eclectic it would be difficult to appeal to everyone. Essentially there were very few fans that could have digested the entire work. Even Zappa conceded that, "[t]here's no single ideal listener out there who likes my orchestral music, my guitar albums and songs like "Dinah Moe Humm."[4] Judging from the record sales statistics the orchestral music appealed to a smaller proportion of Zappa's audience. Perhaps the consumption of the musical incongruity of the 'preferred' rock orientated music was less appealing in the orchestral works. But although the album sales were low for the orchestral music, this does not provide any clues as to why they were low, and therefore to ascertain the reasons for this is difficult. However, some criticisms laid against Zappa's orchestral music provide an indication of some of the problems experienced. Following the 1984 "A Zappa Affair" concert, a journalist from the East Bay Express stated, "Never was the criticism "thick orchestration" (so often erroneously applied to Wagner) more appropriate than here."[5] Bernard suggests that "[Zappa's] typical textures tend to the homogeneous and make practically no use of silence as relief".[6] The implication is of music that is dense with little repose.

In the article *Listening to Zappa*, discussing "Dupree's Paradise" from the album *The Perfect Stranger* (1984), Bernard makes the point that the piece evolves into a display of

[2] Milkowski, Bill. 1984. 'Orchestral Maneuvers', *Modern Recording & Music*, 10(8), p. 29.
[3] Zollo, Paul. 1987. 'Frank Zappa: The Song Talk Interview', *Songtalk*, 4(1), p. 35-38.
[4] Perna, DA. 2003. 'Dynamo Frank', *Guitar World*. 23(12), p. 106.
[5] Crafts, SD. 1984. 'Zappa in Polyester', *East Bay Express*, 6(36), p. 15.
[6] Bernard (2000, p. 91).

monochromaticism and as a consequence feels constrained. Bernard also mentions that this problem is not confined to "Dupree's Paradise" but is present in other pieces. In relation to "Dupree's Paradise" however, "the piece ends up so monochromatic, in terms of texture, dynamics, tempo, and overall pacing, that paradoxically it is very difficult to follow except from moment to moment".[7] Bernard later infers of a stifling listening experience which seems to stem from his perception that the piece of music exhibits some kind of unfulfilled purpose, the connotation here is a negative one. However, following the music purely from 'moment to moment' raises an interesting question about the listening experience in relation to the composer's orchestral music. I shall therefore use Bernard's reference as a springboard to extrapolate the idea of 'moment to moment' listening in different ways. If we consider Zbikowski's musical motives in relation to Eleanor Rosch's cognitive categorisations, it might provide some insight into how that particular interpretation can be aligned with listening challenges in Zappa's orchestral music. With the added prop of Thakar's elucidation of experiential time points as an illustration of habitual or non-habitual responses to the composer's orchestral music we can approximate potential listening difficulties. The idea is how these difficulties also relate to experiential time and how this may yield outcomes that inform us of 'graded' perception of listening.[8] I present these concepts with no intention of forming an overarching all-encompassing theory or strategy for listening to Zappa's music, it is merely a deviation in order to explain reasons for potential listening challenges.

It is characteristic of Zappa's orchestral works to exhibit an element of open-endedness. Chromatically saturated, and often with resolution appearing more as a statement of timbre, dynamics or articulation than some harmonic cadentiality; the demand is on the listener to

[7] Ibid., p. 87.
[8] Graded perception correlates to the cognitive psychological studies of Eleanor Rosch who discovered that there is a hierarchy with members of a specific cognitive category. For instance, common perception of the basic category for bird generally consists of sparrow at the top of the hierarchy and ostrich lower down; this is essentially what is called 'graded membership'.

disregard any expectancies of closure or conventional musical discourse (whatever that may be). And, because of that, as Bernard suggests, we may only interpret 'moment to moment'. But, what constitutes 'moment to moment' listening? In a way, Meyer (1956), was suggestive of this approach where he stated possible outcomes of experiencing the unexpected within a piece of music.[9] One of the outcomes could be the deference of judgement, a kind of 'in the moment' listening experience that allows for the unexpected.

> As soon as the unexpected, or for that matter the surprising, is experienced, the listener attempts to fit it into the general system of beliefs relevant to the style of the work. This requires a very rapid re-evaluation of either the stimulus situation itself or its cause – the events antecedent to the stimulus. Or it may require a review of the whole system of beliefs that the listener supposed appropriate and relevant to the work. If this mental synthesis does not take place immediately, three things may happen: (1) The mind may suspend judgement, so to speak, trusting that what follows will clarify the meaning of the unexpected consequent. (2) If no clarification takes place, the mind may reject the whole stimulus and irritation will set in. (3) The unexpected consequent may be seen as a purposeful blunder. Whether the listener responds in the first or third manner will depend partly on the character of the piece, its mood or designative content. The third response might well be made to music whose character was comic or satirical.[10]

Incidentally, in the above criteria, point (3) has a very close correlation with the inherent humoristic qualities of Zappa's music. A "purposeful blunder" as Meyer states within the context of the 'comical' or 'satirical' is apt in distinguishing instances of comic allusions found in the composer's work. The exaggeration of conventional musical forms or themes expressed in certain pieces as a means to ridicule is an integral part of Zappa's music.[11] However there are other benchmarks from which we can measure to what degree references to American popular culturalisms or perversions of musical conventions can affect the listener (see Singleton 2007). If we return to Meyer's point (1) and how the 'mind may suspend judgement' during the listening experience, we find an interesting alignment with 'moment to moment'

[9] The explanation by Meyer regarding the suspension of judgment has a conceptual correlation with Bernard's "moment to moment" listening, however Bernard's is not an approach as such but more of an enforced listening experience. In other words, out of necessity, one is reduced to listening moment to moment.

[10] Meyer LB. 1956. *Emotion and Meaning in Music*. London: University of Chicago.

[11] There are multiple examples of this process. For example, the manner in which "Louie Louie" is utilised has the capacity to function in a wide variety of contexts, it can be to express mediocre musicianship, an over-simplified monotonous chord progression, or to mock the establishment as in its performance on the Royal Albert Hall pipe organ in 1968. The Mothers of Invention (1969) *Uncle Meat* [LP] US: Bizarre Records.

listening. The extrapolation of this idea into the realms of experiential time, will essentially provide an alternative reading of how one might respond to Zappa's orchestral music.

In referencing Edmund Husserl's *On the Phenomenology of the Consciousness of Internal Time* (1893-1917), Thakar states that "a musical experience is the experience of a temporally extended object".[12] Thakar provides a very simple example of this concept by way of clapping twice in quick succession, which brings about a single act of consciousness; the two claps consisting of one succession experienced as a single event and not as unrelated instances. Thakar explicates that experience of the 'temporally extended object' begins from a now-point, a "durationless border between future and past".[13] But if, as Thakar states, the now-point is durationless how can one conceive of the past if one is always in the now? This is where Thakar introduces Husserl's concept of 'retention'. If the 'temporally extended object' begins at now-point A, we experience the commencement of that particular now-point and as the object progresses we eventually come to now-point B, which opens up the concept of retention. This is where the experience of now-point A is in the past by the time we arrive at now-point B, but we still have the past experience in our conscious which converges with the present at now-point B. When we get to now-point C which represents the last experience of the object, we have experienced a succession of now-points and are conscious of the whole object. This concept applies to partite experiences where successive claps can be divided into separate parts, but there is another type of experience which involves 'protention', an indivisible temporally extended object.[14] 'Protention' consists of the aforementioned now-points, but we now have the 'as yet to come' element which is the undefined, potentially the unexpected, the unknown, which can only be rendered comprehensible once the totality of the object comes into the experience. The principle works fine if the 'temporally extended

[12] Thakar, M. 2011. *Looking for the "Harp" Quartet: An Investigation into Musical Beauty*. New York: University of Rochester Press.
[13] Ibid., p. 131.
[14] Coined by Husserl to signify anticipatory elements of an experience.

[musical] object' is easy to follow and adheres to specific principles of expected musical outcomes, as Meyer states, "[e]xpectation… is a product of the habit responses developed in connection with particular musical styles".[15] With that in mind, it would seem plausible that a listener could experience now-points A, B and C, intelligibly.

From another perspective, let us assume the use of motivic analysis for the specific purpose of revealing elements of continuity in any given piece of chromatic music and also that motivic activity is one of the most structurally 'salient conditions'.[16] The motivic salience in post-tonal music in general can be seen to correlate with 'Categorisation', a branch of cognitive psychology that Zbikowski is keen to explore. Zbikowski draws an analogue with the process of categorisation found in cognitive psychology, particularly the work of Eleanor Rosch[17] on mid-level classification and how this process can be found in the comprehension of musical motives in the Schoenbergian sense, where motives are deemed to be the initial process of comprehension for the listener. The 'basic category' is of maximum utility in describing a thing; it resides in the middle of the taxonomy between the superordinate and subordinate. For instance, furniture would fall in the superordinate category, and kitchen chair in the subordinate, but chair resides in the basic category and it is here where the most common relatedness to a member of a category occurs.

> In a close analogue to perhaps the most distinctive features of basic-level categories, Schoenberg's theory of musical coherence begins not with individual musical events or with four- or eight-measure phrases, but at a level somewhere in between. Although the motive is the smallest recognizable part of a musical work, it is in fact made up of still smaller parts, namely its constituent pitches, intervals, and durations. The cognitive salience of the motive thus mirrors that of the basic level: in both cases the focus is on the whole rather than on the parts.[18]

[15] Meyer (1956, p. 30).
[16] See Lerdahl (1989).
[17] Eleanor Rosch a specialist in cognitive psychology, conducted experiments in the 1970's on how people classify everyday objects and experiences. Publications on categorisation include *On the Internal Structure of Perceptual Semantic Categories.* In T. Moore (ed.), *Cognitive Development and the Acquisition of Language,* New York: Academic Press, 1973 and *Natural categories*. Cognitive Psychology 4(3), 1973, pp.328–50.
[18] Zbikowski M, Lawrence. 1999 'Musical Coherence, Motive, and Categorization', *Music Perception*, 17(1), pp. 5-42.

The concept of 'basic category' converges with Thakar's interpretation of the experience of 'temporally extended objects'. Just as the two claps which are experienced as a single act of consciousness, so too are the motives of which Zbikowski mentions; both events made up of smaller parts but conceived as a whole. A similar concept is introduced by van den Toorn in his article "What's in a Motive? Schoenberg and Schenker Reconsidered" (1996). Van den Toorn explains that "if a-b-c is a succession of [motivic] forms, then b not only derives from a but anticipates c as well; in turn c derives from b. More significantly a b and c are made consequential as a result of that succession, a process of derivation and anticipation; they are heard and understood as part of a larger, developing train of thought, one from which function and meaning are derived".[19] Zbikowski explains that motives share similar features with basic level categories, concerning wholes rather than parts of wholes and that both are subject to the influence of expertise.[20] Further investigation reveals that membership of specific categories is not fixed and is susceptible to change, known as 'graded membership', the category of 'bird' for instance, is a good example where research on categorisation showed that people identified sparrows and robins as being the strongest contenders for this category while ostrich and emu were lower down the list. In terms of how this relates to musical motives Zbikowski postulates a conceptual model which consists of elements that make up the model. For instance, the elements could be a rhythmic pattern, a motive performed by the entire orchestra, the dynamic value, the pitch orientation. All the elements categorise any instance of the motive where it may contain all the given attributes of the conceptual model. Essentially, the conceptual elements are what define typicality of the motive, and if a motive belonging to category 'a' (a1, a2, a3 etc…) retains all of the conceptual elements it is deemed more typical of that particular category and if a given motive contains only the rhythmic and dynamic elements for example

[19] Van den Toorn C, Pieter. 1996. 'What's in a Motive? Schoenberg and Schenker Reconsidered', The Journal of Musicology, 14(3), pp. 370-399.
[20] Zibowski (1999, p. 38).

it would be deemed less typical of the motive. This is what Zbikowski's means by 'graded membership', and just like the example of the bird category, it transfers to the way a person may experience motives in music, essentially the discrimination of members of a given category. However, Zbikowski reflects that "motive-recognition is not something given directly by perception and can change with expertise: what counts as a motive, just as what counts as the basic level, is not immutable".[21] The mutability of motive recognition is an important consideration which can be affected depending on the type of listener. Therefore, the idea of basic category or 'retention' and 'protention' in a now point continuum can be compromised and the listener is reduced to listening 'moment to moment' with little if any reference to preceding and future events. But are there any strategies for listening to Zappa's orchestral music? The answer to this question is affirmative, and with careful explanation has the potential to improve our understanding of his music.

Zappa's Time Theorem

It will now be necessary for me to broaden the stylistic area of Zappa's works by acknowledging in tandem with the orchestral, some of his non-orchestral music. This will provide a stronger and more unified presentation of Zappa's concept of time and music. For Zappa, the conception and development of a composition was susceptible to a wide range of possibilities. Musical sounds could be assembled in any manner deemed suitable, often with interesting results. And no matter how eclectic or diverse the work, there was one strategy, which was simply a repudiation of established musical rules and conventions. Zappa made no distinction between his rock and orchestral music, as far as he was concerned it all stemmed from the same place and involved different approaches to different musical problems.

[21] Ibid. p. 13).

Accompanying this strategy was a conceptual assertion that identified the manner in which his whole work could be seen to function. One aspect of this assertion was an alternative conceptualisation of time.

> You see, one of the problems is that people have the wrong idea about time itself. Time is nothing more and nothing less than fractional divisions of eternity. And they're irrational divisions at best; stupid mechanical divisions of a continuum that is gonna be there and is gonna be there… Now, people presume that it's got a direction that it goes from here to there, and sometimes – if they have to think of it at all – have to think of it in terms of a line or band, or a continuum that is progressing in a direction. But it doesn't work that way at all. It's spherical... And it's a moebius sphere, and it is moving inward and outward at the same time. It defies being chopped up into segments like that… You see, the concept of, uh, dealing with things by this mechanical means that you use to set your alarm clock, if you want to set your art works by it then you're in trouble, because then everything is going to get boring. So I'm working on a different type of a time scale.[22]

Zappa insisted that his whole musical output was one composition, only separated into individual tracks because it was released on records.[23] In *The Real Frank Zappa Book*, the composer explained that "[e]ach project (in whatever realm), or interview connected to it, is part of a larger object".[24] This unifying concept facilitates alignment with the idea that time does not have to be perceived as following a linear trajectory. The fact that individual pieces of music are distributed among different albums does not mean that the whole body of work is not functioning all the time. For instance, an event, character or musical motif is not confined to one episode, it may reappear in several incarnations overtime, or for Zappa, all the time.

> Everything's happening all the time. The reason I can say that[,] is time depends on the point from which you're looking at it. It only appears that things are transpiring because we are here. If we were someplace else, they would not have transpired yet. If you could move your point of reference to the event taking place, you could change the way in which you perceive the event. So, if you could constantly change your location, you could live the idea that everything is happening all the time.[25]

In this context, there is a dichotomy between the unbroken non-linearity concept of time and how we attempt to measure it linearly in order to bring coherence to our existence. The anthropomorphic projection of time, illuminates the fact that it is beyond our grasp, 'time waits for no man', 'if time permits' etc… this idea can be construed within the context put forth by Barrow and Tipler, cited by Allaby (1995) that "it is the presence of observers that gives the

[22] Fixmer, R. 1975. 'A Matter Of Taste', *Bugle American*, No. 229, Dec 1975.
[23] *Peefeeyatko*, 1991. Directed by Henning Lohner [TV Documentary] Germany: WDR3.
[24] Zappa and Occhiogrosso (1989, p. 139).
[25] Marshall, 1988.

universe a tangible reality".[26] In other words, time only exists for us because we are here, and therefore Zappa seems to be stressing the importance of 'when' we experience a thing rather than gauging the experience in reference to a linear point in time. Hollinden (2008) explained that the human mind does not follow a linear time based chronology but more of a free flowing association of ideas. This is an important realisation as it helps the listener to understand some of the more potentially problematic aspects of Zappa's works. The simultaneity of multiple musical references, abrupt contrasts, cultural references, conceptual continuity, the high art low art contention and perversion of stylistic norms are just some of the inherent attributes of the composer's music. This also lends some coherence to the interrelatedness of the overall work. Zappa's neologism to express continuity is 'Project/Object' which is distinguished firstly by the 'project', be it an interview, guitar solo, or composition, and the 'object', the totality of his work. Zappa's music could be better understood in this context; a piece of music that doesn't necessarily represent an end in itself, but as an interrelated part of the whole. Hollinden presents some pertinent questions about Zappa's sense of universal time.

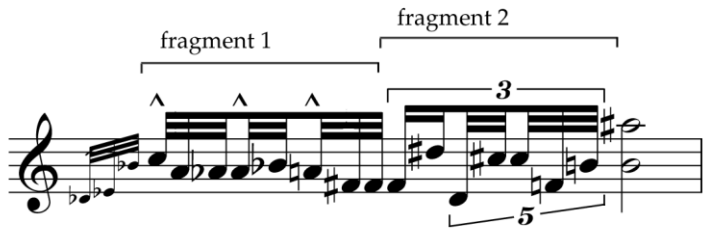
> If we take this belief in non-linear time as the basic foundation for Zappa's music and as its core, unifying factor, we need to ask ourselves, how would this manifest itself? How could Zappa illustrate the Universe to us humans who generally perceive his music in linear time, in one reality at a time? The best way would be to somehow force the listener to perceive multiple simultaneous realities.[27]

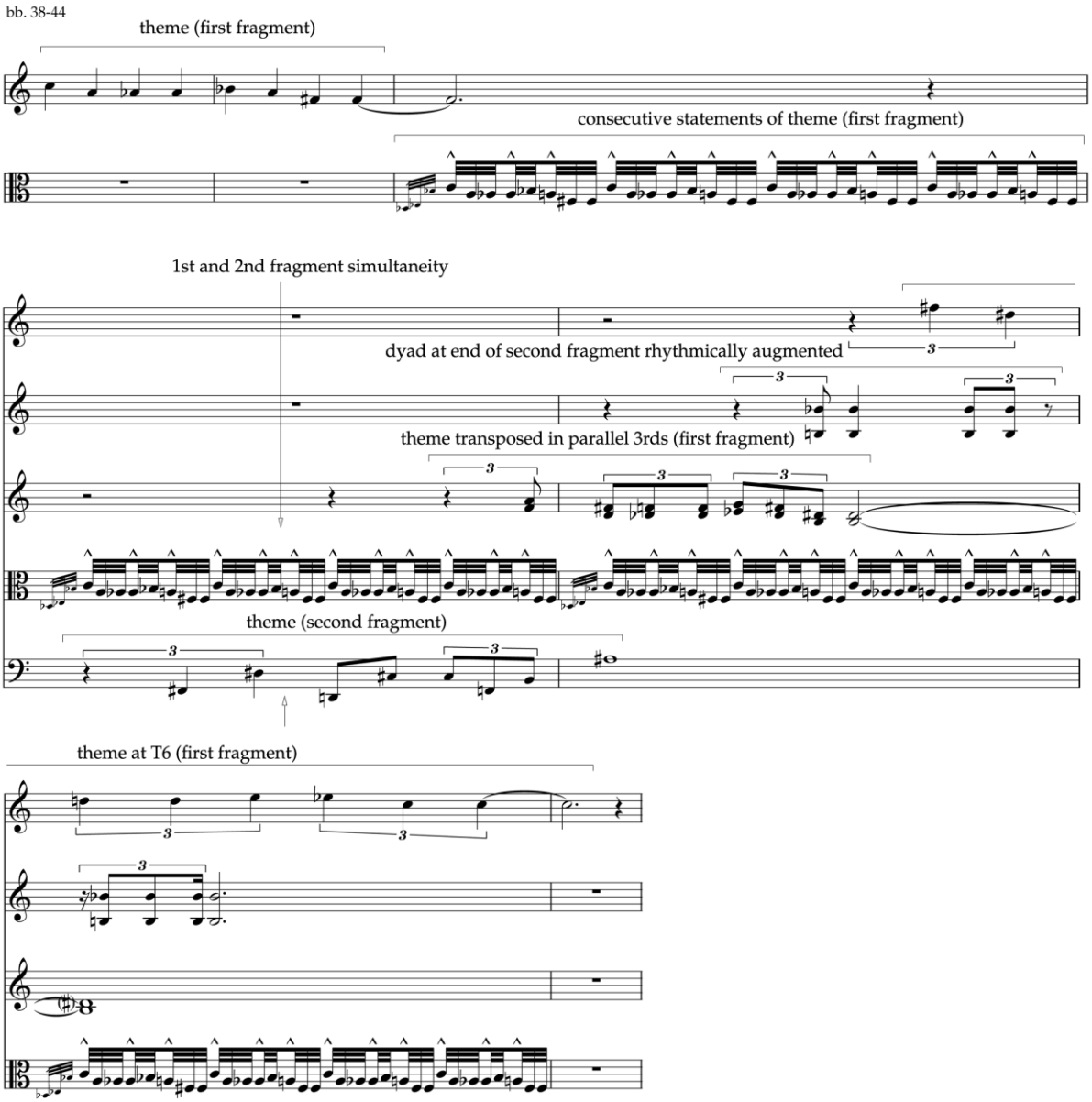
The possibilities for observing multiple realities in Zappa's music is fascinating, and can be seen to function in a variety of ways. An illustration of simultaneous musical realities in the orchestral music is represented in the following example from "Mo 'n Herb's Vacation – Second Movement". The main theme is introduced at b. 1 (ex. 8.1) which sets the precedent for much of the subsequent derivations that are based on it. As mentioned in the analysis of chapter 6, the theme is divided into two fragments and a dyad because of the way in which it is developed and varied throughout the second movement. The theme is consistently diffused

[26] Allaby, M. 1995. *Facing the Future: the case for science*. London: Bloomsbury Publishing PLC.
[27] Hollinden, Andy. 2008. 'Everything is Now: How Frank Zappa Illustrates the Universe', *Actes Intermédiaires de la 3ème Conférence Internationale de Zappologie (ICE-Z 69)*, Paris, 5-6 July. [Online]. Available at: http://www.killuglyradio.com/storage/ICEZ-3-draft_2008.pdf (Accessed: 7 January 2016).

in various forms and timbres separating into fragments that branch off into other forms of variation. Between bb. 38-44 the two fragments and dyad of the theme are verticalised. An instance of ‘simultaneous musical realities’ if you will, where the 1st and 2nd fragments and dyad of the theme converge. The theme is now presented divided into 3 constituent parts where each part unfolds at differential points in time forcing the listener to perceive it in a non-linear fashion.

b. 1 - main theme





EXAMPLE 8.1. "Mo 'n Herb's Vacation – Second Movement" Main Theme.

In the following example, the simultaneity of multiple rhythms, many of them polyrhythmic is a fascinating microcosm of differential rates of time. American pianist and music writer Charles Rosen in describing Elliott Carter's approach to composition and time provided an apt elucidation which resonates with the conceptuality of differential time.

> We do not measure time regularly, like clocks do, but with many differing rates of speed. In the complexity of today's experience, it often seems as if simultaneous events were unfolding with different

> measures. These different measures coexist and often blend but are not always rationalized in experience under one central system. We might call this a system of irreconcilable regularities.[28]

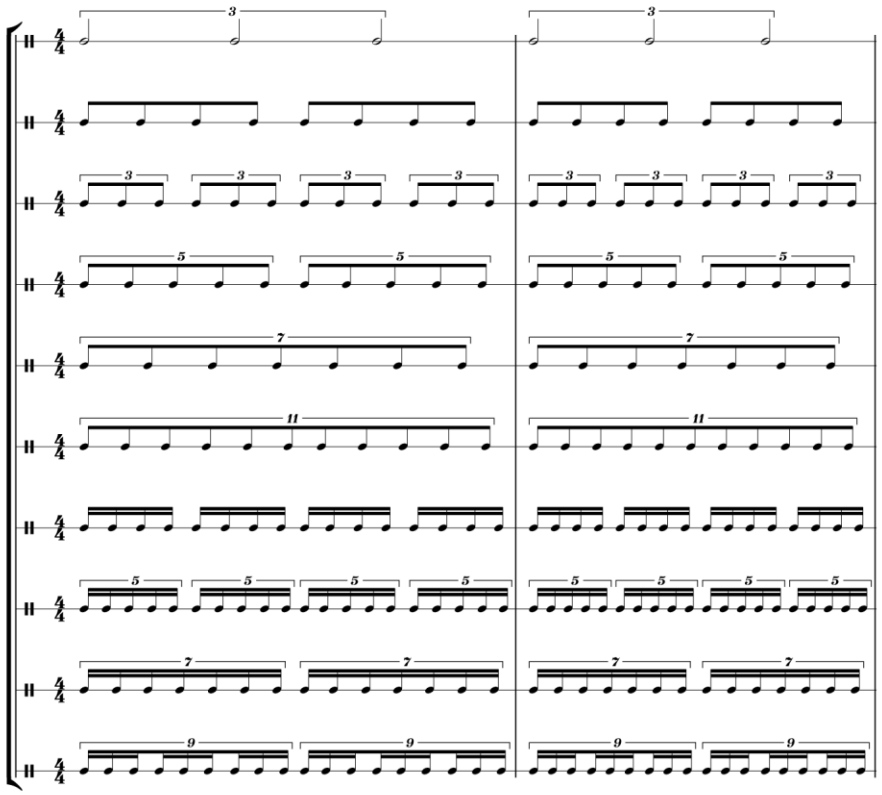
The extract from "Mo 'n Herb's Vacation – Second Movement" in example 8.2 illustrates the concept of simultaneous events moving at different rates.[29] The example here is presented without pitches in order to focus attention on the rhythmic values. Individual members of the orchestra are forced to find their own sense of rhythmic space and remain fully concentrated on their own rhythmic part. The aural result is unsurprisingly cacophonous yet accompanied by this conceptual framework infers multiple musical realties. Moreover, Zappa suggested that in some cases a framework was necessary in order for the composer to decree that a given composition as such. For example in discussing John Cage, Zappa contended that:

> If John Cage, for instance, says, "I'm putting a contact microphone on my throat, and I'm going to drink carrot juice, and that's my composition", then his gurgling qualifies as his composition because he put a frame around it and said so. "Take it or leave it, I now will this to be music". After that it's a matter of taste. Without the frame as-announced, it's a guy swallowing carrot juice.[30]

This is helpful as it shows that Zappa was aware that the conceptualisation of an act, event or even our sense of time could somehow lend coherence to certain structural events within music.

[28] Rosen, C. 2012. 'Elliott Carter's Music of Time', *The New York Review of Books*, 59(2), p. 24.
[29] Zappa perceived the universe to be full of differential time rates, "it's a universe of rates. You have molecular rates. You have large-scale rates. You have the expansion of the Universe rate. You have the rate of atomic decay. You have the rate of aging. You have all these rates. So, it's a world of rates, and rates are time. Just so you really understand it, the rate is the difference between when it starts and when it ends. That's the rate. These are cycles. A cycle is the way it goes up, the way it goes down. That's one cycle. You know, it's pretty consistent the way I look at stuff." 'Interview by Bob Marshall – October 22 1988' (2014) *Kill Ugly Radio*. Available at: http://wiki.killuglyradio.com/wiki/Interview_by_Bob_Marshall. (Accessed: 7 January 2016)
[30] Zappa & Occhiogrosso (1989, p. 141).

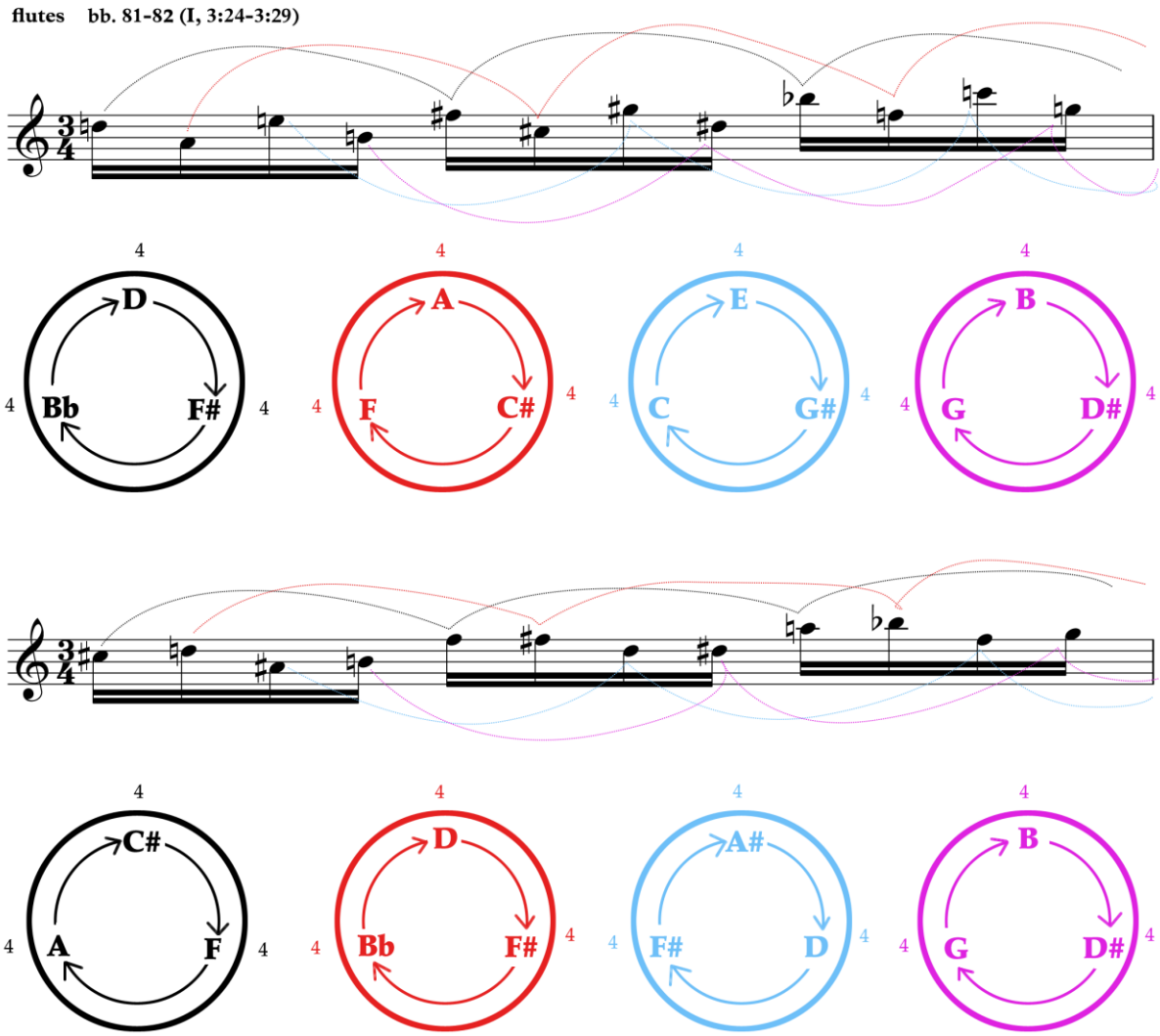
bb. 23-24



EXAMPLE 8.2. "Mo 'n Herb's Vacation – Second Movement" Multiple Polyrhythmic Simultaneities.

Another form of cultivating differential time is in the cascading of a melodic line where each subsequent iteration of the line begins at different points. This is a form of contrapuntal organisation commonly known as a canon, but is somewhat distorted by multiple instances of the same line performed at non-congruent starting points. The sound is disorientating, forming a discordant timbre that becomes progressively denser as each line is introduced. An example of this is again derived from "Mo 'n Herb's Vacation" between bb. 105-110 in the first fragment, that unfolds in different instruments with a crotchet rhythmic value delay for each statement of it. This overlap technique is not particularly unique but does however fall into the context of our present discussion where instances of the same thing occur within close proximity.

In the piece “Bob in Dacron”, there is deep embedded potential for differential cyclical events. Differential in the sense that each cycle contains the same intervallic values but proceed in a sequential manner. These ‘micro cycles’ are a product of a melodic line that unfolds in a linear fashion consisting of descending intervals of ic5. The observation of each 4-note semiquaver mapping correlation yields the ic4 cycles, that is herein represented by intervallic distances, 4-4-4, the endless cyclic potential is a result of 12/4 = 3, and so 3 x 4 = 12 which is 3 successions of ic4 intervals that go round and round the 12 note spectrum. Essentially what is being projected in this two bar analysis is the potential reading of multiple ic4 cycles rotating at the same rate, rhythmically (semiquaver consecutions) and intervallically (ic4 consecutions) but at different places in time. The possibility for such an elegant reading is exceptional purely for the fact that the fulfilment of an ongoing system of events which could be represented in such a way is seldom experienced in Zappa’s orchestral music.



EXAMPLE 8.3. "Bob in Dacron" The Potential for Cyclical ic4 Simultaneities.

Another example of this conceptual projection of time was Zappa's practice of taking musical occurrences from two different times and places and merging them together. The term *xenochrony* was used to represent a process where the composer would take a guitar solo from one place and time, and combine it with a rhythm section performance from another; essentially the fusing of unrelated musical occurrences.[31] Zappa explained, "the musical result is the result of two musicians, who were never in the same room at the same time, playing at two different

[31] *Xenos* originates from the Greek 'strange' and *Chronos* or *Khronos* is 'time'.

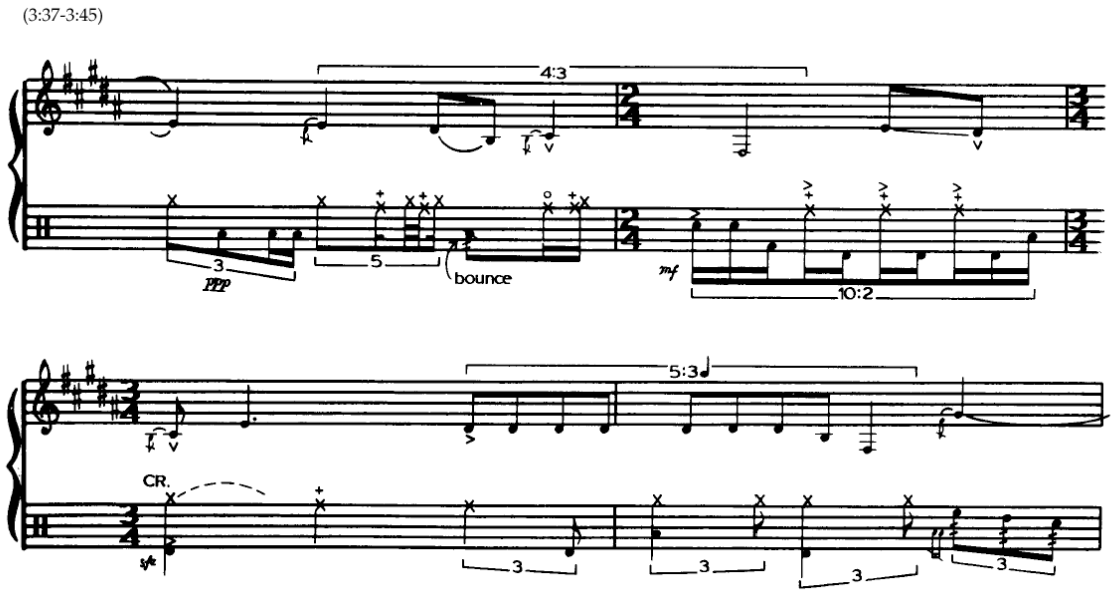
rates in two different moods for two different purposes, when blended together, yielding a third result which is musical and synchronizes in a strange way. That's xenochrony. And I've done that on a number of tracks".[32] The most illustrative examples of this technique is on the album *Joe's Garage* (1979).[33] As these simultaneities of different musical performances are improvisatory, the consequent interaction between the rhythm section and the guitar solo creates a certain kind of musical interaction that actually never took place.

> The solos in "Joe's Garage" had very little to do with the backing tracks. They were all recorded on the road to other songs. I came back with a stereo Nagra tape of just guitar solos and thought of songs where they could go. You try to find something that's in the same key but the time signature could be different. In "Packard Goose", the backing is in 4/4 and the solo was played in 15/16 in a totally different tempo. It was from the last show in Zurich during a song called "Easy Meat". The solo in "Keep It Greasy" – the rhythm background I think is in 21/16 and the guitar is in 11/4. The beats come together about once a month.[34]

Interestingly, the transcription of these solos illustrate the complexity of notating two different musical realities simultaneously. In the example below, an extract from the solo for "He Used To Cut The Grass" from the album *Joe's Garage* (1979), the bottom stave is part of the drum transcription presumably performed and recorded in one place, and the top stave is the guitar solo, performed and recorded in another. The manner in which the guitar in the first bar of the example starts on the 2nd beat instigating 4 crotchet beats in the time of 3 which crosses into the following bar exhibits irregularity, not particularly uncommon in Zappa's music. However, the polyrhythmic structure of that rhythm set against the semiquaver decuplet figure in the drums which although starts on beat 1 of the following bar intersects the 4:3 rhythm in the guitar at the 4th crotchet. The notated results of these time incongruities are particularly interesting. However, elsewhere in this transcription are instances where the drums and guitar converge on the same beat implying momentary congruity. This suggests the possibility that editing was carried out by Zappa at certain points in order for the guitar solo not to rhythmically drift too far away from the drum track for too protracted a period. The occasional drift is what

[32] Bob Marshall, 'Interview with Frank Zappa,' October 22, 1988.
[33] Frank Zappa. 1979. *Joe's Garage* [CD] USA: Rykodisc.
[34] Colbert, P. 'Zappa: Speak Out', *Musicians Only*, 1980.

makes the rhythmic anomalies interesting, however there would be points where realignment would be necessary so that the listener had something by which to measure the next instance of rhythmic friction. In this context, Zappa would be seen to be imposing periodicity. This practice is a lucid example of forcing "the listener to perceive multiple simultaneous realities". It is a deviation from the linearity that Zappa refutes and as Carr (2013) states, "encourage[s] the listener to engage with his music 'vertically'".[35]



EXAMPLE 8.4. "He Used To Cut The Grass" ***Joe's Garage*****.** ©1979 Munchkin Music. All Rights Reserved.

[35] Carr, p. 10.

Rhythm and Fractals

Zappa proposed a theoretical concept that aligned with his interpretation of rhythm; the theory of fractals. The fractal realisation of rhythm proves to be a useful approximation of its constituent parts. We know that the composer organised his rhythms as 'speech-influenced' structures which was achieved by the acceleration and deceleration of rhythmic values within relatively short periods of time. This emulative process required the use of irregular and complex polyrhythms performed over a regular pulse. But if one were to interpret the time-space between each rhythmic attack point of any given rhythm (in this case a polyrhythm), as slices of universal time, a fractal conceptualisation is possible.

> The more I think about fractals, the more the whole idea of fractals relates closely to what I do…if you're trying to divine order out of chaos, that's a little bit presumptuous, but then on the other hand so is the concept of chaos. So I would say that the fractal theory falls in the cracks between those two attitudes. And rhythmically, if you're dividing the universe into twos and threes, which is basically what happens with all polyrhythmic subdivisions, you are to some degree missing the boat – the fractal boat. If you can think of rhythm as an extension of the fractal universe instead of even subdivisions of twos and threes grouped into elevens and thirteens or whatever, if you can think of microsecond relationships as being valid components of polyrhythms, then you're getting closer to the way I view things."[36]

This conceptualises rhythmic values as existing within the framework of time and duration, transcending the actual conventional instructions (notation) and interpretation (performance). In other words, the length of time between each rhythmic value can be measured in microseconds and the variability thereof contingent on the type of rhythm and the speed in which it is performed. For example, a quaver-note quintuplet played in the time of two crotchets could be conceived as a duration where the space between each note of the quintuplet is equatable to microsecond units.[37] We could say a quaver-note quintuplet played in the time of four quavers simply divides the allocated time for the performance of 5 notes instead of 4.

[36] Menn (1992, p. 45).

[37] There is also a fractal implication in subdividing polyrhythms. Zappa is suggesting that all polyrhythmic subdivisions can be reduced to either groups of twos and threes. So a quintuplet could be divided into one group of two and one of three, just as a septuplet could be divided into two groups of twos and one of three. This means that all polyrhythmic subdivisions can ultimately be reduced to a type of binary system consisting of groups of twos and threes. Although Zappa does not acknowledge this as inherent of fractal qualities, it is in fact susceptible to a fractal interpretation. The reduction of polyrhythms to simple twos and threes suggests that they could be interpreted as the germination of more complicated replications of themselves.

The time allocation where or when the quintuplet is performed is dependent on the tempo of the music. While the fractal consideration relates to the quaver note as an iterative element generating self-similarity in its proliferation, it also represents divisions of time.

By the time of the above cited interview, Zappa had been fully engaged with composing on the Synclavier. And so the reference to measuring polyrhythms in microseconds is related to the process of data input. Zappa employed a number of methods for data input, and one of the options available involved manually typing in the notes. This could be carried out in the Synclavier's *G-Page*, which contained numerical representations of note positions and durations allowing the composer to assign the position of each note of the phrase by milliseconds if he so wished. Essentially one positions each note in relation to an allocated time slot. In the *G-Page*, the notation is represented as numbers and points in time and it is possible for the user to see in milliseconds where each note is played.[38]

> If you really want to get abstract and build your composition just on the G Page, instead of dealing with tuplets, you can deal in milliseconds. The rhythm on the G Page is determined by the start time of the note – that's the data that lives in the left-hand column. So you can read data on the G Page in three different modes: in terms of seconds, beats, or SMPTE [time code] numbers. If you're looking at a 4/4 bar at 120 in the mode that shows you beats per bar, beat 1 is the first quarter-note, beat 2 is the second quarter-note, etc., and beat 5 is the downbeat of the next bar. But inside of that, you have resolution down to five milliseconds. You can add and delete notes on the G Page. So you can build a list that would say: There's a note on beat 1 and there's another note on beat 1.005. Then the next one could be on any arbitrary number – you can just enter any kind of numerical scheme you want for the rhythm. For some of the kinds of rhythms I type in, my G Page tuplets look like beat 1, beat 1.07, beat 1.14 – in other words, this whole series of notes is going to be 70 milliseconds apart. You don't even need to worry about tuplets anymore – just go for the flow. You can have these notes be totally distinct from one another, or you can have them overlapping each other to make chordal arpeggios, just by changing the duration in the far right-hand column. In other words, if you want the notes to overlap – if they are 70 units apart, and you want every three of them to overlap – on the page it would look like the third note would last 70 units, the second note would last 140, and the first would last 210. The first note that plays would last the longest. The effect is like a little three-note arpeggio. That's what I do for 12 and 14 hours a day – sit there and deal with those kinds of numbers. It is the only way to write that kind of music.[39]

The fractal associative interpretation is revealed in this quotation. It is apparent that the distances between successive notes can be arbitrarily chosen, in this example it is 70

[38] This was the process used for the construction of "The Girl in the Magnesium Dress" from *The Perfect Stranger* (1984), see Menn (1992).
[39] Forte, D. 1986. 'The Sin In Synclavier', *Guitar Player*, pp. 38-42.

milliseconds. The even distribution of this unit will create a rhythm whereby every value is exactly 70 milliseconds apart. This level of detail begins to take on fractal characteristics in which the millisecond gap represents a simple self-simulation that is catalytic to a more complex musical design, which in this case is the polyrhythmic structure. Essentially it is a process that provides a simple rule of transformation. A similar deduction can be made in terms of nested tuplets:

> If you want to enter an 11-tuplet in there [G Page of Synclavier], you just give a couple of commands and it locates pitches inside this imaginary framework of an 11-tuplet over 3 [crotchets]. And you're not limited to just entering 11 notes; you could enter four 32nd-notes for each eighth-note in the 11-tuplet, if you wanted, thereby winding up with a 44-tuplet. Also, if you decided that right in the middle of your 11-tuplet you wanted to have a quintuplet that began on the third note of the 11-tuplet, you give a second instruction and it gives you a second-level tuplet. We're building what is described as a nested polyrhythm – one polyrhythm living inside of another polyrhythm. With this machine you can nest three of them. After you've entered your quintuplet starting on the third beat of the 11-tuplet, you could then decide you wanted to have a septuplet that began on the second beat of the quintuplet inside of the 11-tuplet. Or any kind of tuplet you wanted, up to the maximum resolution of the machine. After you've typed in all the stuff, you push the Play button, and by golly, there it comes – and it's on time.

As mentioned, if we take Zappa's concept of all polyrhythms being reducible to a binary division of either twos or threes, it will transpire that each division has the capacity to facilitate a multitude of complex polyrhythms. This implies a simple rule that can be extensively developed. Solomon (2002) in discussing fractals in music, suggests that "fractal forms may be generated by using a simple iterative rule (formula) and a "seed" or motive. This seed is the basic shape used to generate the fractal."[40] Solomon also refers to two kinds of fractal interpretations, "exact similarity (linear fractals)" and "statistical similarity (non-linear fractals)". Linear fractals reproduce exactly the same shape and nonlinear types create resemblances which are not exact but "close enough to be recognized as statistically self-similar."[41] The 'linear types' are attributable to Zappa's concept of rhythm and fractals.

[40] Solomon, L. 2002. *The Fractal Nature of Music*. Available at: http://solomonsmusic.net/fracmus.htm (Accessed: 23 January 2016).
[41] Ibid.

The Subliminal and Isomelism

In Zappa's music we find a number of recurring references which inform us that subliminal information is being conveyed. The entire work is riddled with allusion and as a result adds a unique dimension to the music. Because it is accompanied by an ongoing narrative it demands a more in-depth and disciplined listen. Once the references have been absorbed, a deeper level of engagement is possible and hence the idea of *conceptual continuity* begins to have greater significance. During an interview with Marshall (1988), Zappa explained that in connection to his work, *conceptual continuity* was "everything", even the interview being conducted was deemed part of the whole work.[42] Wragg (2001) interprets this idea as "the elaborate system of musical and sociological interconnections across [Zappa's] works."[43] While Hollinden (2008) suggests that c*onceptual continuity* is exemplified by "associative triggers, subliminal melodic restatements, *xeonochrony*, polyrhythms and other rhythmic dissonances."[44] Moreover, Carr (2013) states that *conceptual continuity* "has become the means through which many Zappa fans describe their tracking of denotative meanings".[45] It is the "denotative meanings" which are intended to convey the c*onceptual continuity*. These meanings come in various forms and the intertextuality of them provide opportunities for the listener to make a multitude of connections between pieces of music, band members, album covers, and a host of other construable objects. Some of these connections are conspicuous, while others are surreptitious with the potential for them to be functioning at the subliminal level.

> These things are functioning on the same level as the type of psychological information conveyed by basic geometric patterns in advertising layouts, the triangle being a very simplistic surrogate replica of a female pubic region, or the way in which they compute that a circle resembles a breast…These are all factors that they actually deal with on the advertising agency concept level…You can intuitively combine these things to convey information that is not in the written text itself or in the illustration. It's the same thing with music.[46]

[42] Bob Marshall, 'Interview with Frank Zappa' October 22, 1988.
[43] Wragg, D. 2001. ''Or any art at all?': Frank Zappa meets critical theory', *Popular Music* 20/2, pp. 205-222.
[44] Hollinden (2008).
[45] Carr, p. 12.
[46] Dallas, K. 1978. 'Carry on Composing', *Melody Maker*, pp. 8-9.

Here Zappa is referring to the type of stimuli used to evoke a certain train of thought through the manipulation of shapes. Zappa was fully aware of the power of advertising and the various strategies of manipulation and forms of coercion used in order to engender certain behaviours. Zappa had gained first-hand experience with this during his short stint training as a door to door salesman of Collier's Encyclopaedias.[47] He had also read Vance Packard's 1957 book *The Hidden Persuaders* about the psychological manipulation of subliminal advertising in the 1950s.[48] Zappa seemed to have taken specific techniques from advertising but reused them in a way that facilitated *conceptual continuity*. How this manifests in his work is interesting, the ongoing themes that appear throughout have the potential to function on the subliminal level. Hollinden (2008) illustrates parts of this conceptual framework in Zappa's films and music. For example, in TV advertising, frames are strategically cut to modify the way the information is conveyed, and so identifying this correlation in Zappa, Hollinden highlights the way video was edited. The "flicker-frame" editing was a process whereby Zappa "edit[ed] back and forth between two scenes so quickly that we [could] watch and absorb them both simultaneously". Essentially forcing the viewer to perceive two realities at once. Hollinden provided an example of this technique during his presentation at the International Conference of Esemplastic Zappology in 2008.

> In 200 Motels, the…scene in which Rance Muhammitz says, "It's entirely possible for several subjective realities to co-exist" appears during a sequence in which Zappa edited back and forth between two scenes, one of Muhammitz sitting at a table with the old Mothers (Don Preston, Jimmy Carl Black and Motorhead Sherwood) and another of him on the bandstand with the new Mothers… This is a very effective, graphic example of illustrating simultaneous realities.[49]

The incorporation of subliminal techniques is not exclusive to film. Hollinden demonstrates further correlation by presenting musical examples of small melodic and rhythmic fragments that are found in a number of different compositions. For example, Hollinden identifies a

[47] See *The Real Frank Zappa Book*, p. 40.
[48] Marshall, 1988.
[49] Hollinden, 2008. The "flicker-frame" technique also occurs during the guitar solo for "Inca Roads" from *The Dub Room Special!*, (Honker Home Video, 1982) a quick succession of frames is alternated between the performance of the guitar solo and Bruce Bickford's clay animation.

quintuplet rhythm motif found in three compositions which he calls "The 5". Not only is the motif recycled across different pieces, the narrative of which it accompanies is of equal importance. In "Penguin in Bondage", "The 5" is associated with "nuns and the bondage of Catholic faith". In "San Ber'dino" it is used in reference to Potato-headed Bobby wherein Hollinden illustrates that "potato-headed" is a code word for black"". And then in "Advance Romance" it is again associated with Potato-headed Bobby. Furthermore, these subliminal associations form a continuity that was later to be realised in *Thing Fish* (1984) where the central character and the "Mammy Nuns" correlate with the aforementioned iterations of the Catholic nun and the American black.[50] Elsewhere Zappa had discussed subliminal occurrences such as in "America Drinks & Goes Home", where the crowd noises, although cacophonous to the listener were strategically designed. In an interview, Zappa referred to specific sentences that were overlaid, yet instead of existing for textural effect, the backdrop of which the event takes place was meticulously manipulated and we are alluded to the importance of the backdrop which ironically we are unable to decipher. Zappa states that, "[t]hose things are so carefully constructed that it breaks my heart that people don't dig into them and see all the levels that I put into them".[51]

Further evidence that Zappa was interested by the incorporation of subliminal elements within his work is from a 1969 interview in which he discussed composer Pauline Oliveros.[52]

> ZAPPA: What we do and have from the very beginning is concept art. You know? Like, the real artistic merit of what we do does not necessarily exist on the disc itself. It's like difference tones. I tried to explain this concept in a lecture I gave to a group of radio broadcasters. Do you know Pauline's piece on the Argosy label. She's made a piece of music on which the sounds are generated this way. Two sounds, one below the audible range of hearing and one above the audible range of hearing and from them are produced "difference tones".

[50] Ibid., p. 5.
[51] Kofsky, F. 1967. 'The Mothers of Invention: Part II', *Jazz and Pop*, 6(10), pp. 28-32.
[52] During the 1950-60s Pauline Oliveros experimented in electronic music, using test equipment such as oscillators, patchbays and tape recorders, she conducted improvisations with frequencies. The improvisation system was based on the difference tones between oscillators. "Setting oscillators above the range of hearing and using the difference tones between the oscillators in a tape delay system caused a lot of beat frequencies with the bias of the tape recorder. That's how I made my early electronic music, like I of IV, Bye Bye Butterfly. I began to do live performance things using tape delay." Steve Silverstein. "Pauline Oliveros: Deep Listening, composing, just intonation," *TapeOp*, May/June 2004. Web. (Accessed: 23 October 2015) <http://tapeop.com/interviews/41/pauline-oliveros/>

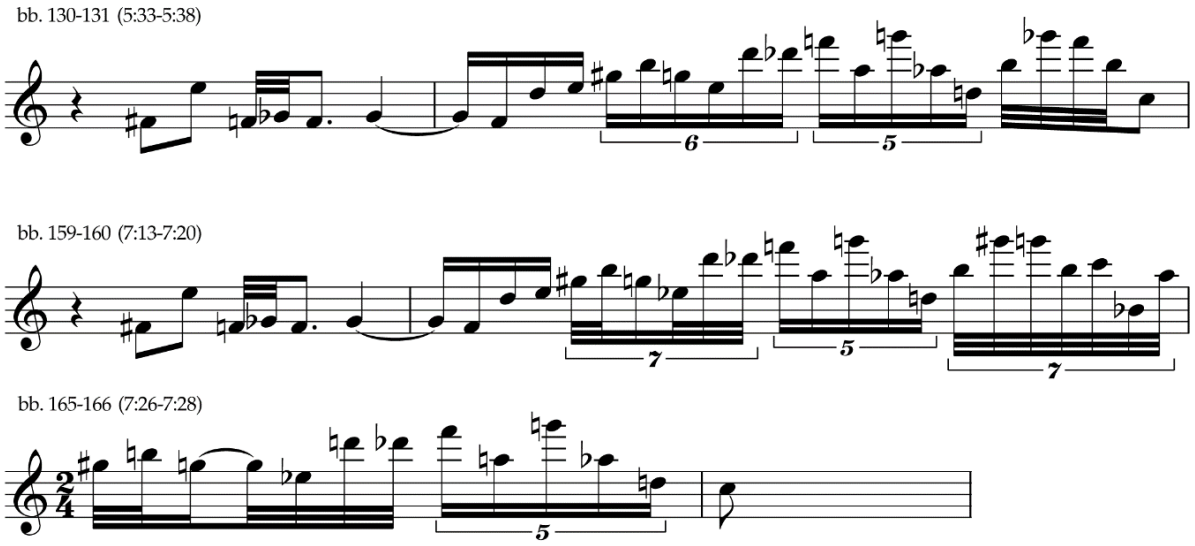
> PAUL: Are they audible?
>
> ZAPPA: Yeah. They're quite audible. But they happen in between the two real things. So if you vary those two tones slightly, all this mass in between shifts. And so she's created a piece where the tones are varied slightly and the whole thing is fed into a system of tape plays, and so, when played back on top of one another, it makes a certain thickness, a bandwidth of non-existent madness.
>
> And some of the things that we do function on a related principle. Some of the ideas are below the level of human consciousness, and some of them are above the level of human consciousness. And in the middle is this peculiar by-product, which is the manifestation of what those ideas are. Does that sound a little bit too abstruse for you?
>
> PAUL: No! No. I was just laughing because I wondered how many of your listeners pick up on that.
>
> ZAPPA: Well, none of them do. And this peculiar monstrosity has been manufactured and distributed by an industrial mechanism, which gives it this other weird dimension. You know? And some of the albums we've put out, the content of the album is completely irrelevant to the concept of the album. Do you follow me?[53]

This excerpt is intriguing for two reasons, firstly Zappa is inferring a kind of manipulation 'in reverse', where unbeknownst to the record company and its various industrial counterparts, certain subliminal information is contained within the records which go undetected by both the "industrial mechanism" and audience. However, inference of the idea that Zappa presents in which the record company is subject to manipulation as opposed to the artist is remarkable and demonstrates cunning and audacious intent. Secondly, Zappa was certain that the audience did not always detect the subliminal references, the aforementioned example of "America Drinks and Goes Home" is a case in point. As we are about to observe, this concept appears to be functioning in "Pedro's Dowry" where musical phrases are recycled in the most clandestine way.

In "Pedro's Dowry" there exists a network of interconnectivity, which at times is so discreet that it eludes conscious awareness. The way phrases and rhythmic figures are covertly manipulated seem to have been designated for the subconscious, resulting in a unified musical process by means rendered unbeknownst to the listener. For instance, at b. 130 a melodic phrase is introduced in the bass clarinet and piccolo and is clearly a prominent surface feature.

[53] Eberle, P. 1969. 'Frank Zappa & Paul Eberle Rapping In Los Angeles 1969', *Los Angeles Free Press*, 6(264), p. 38.

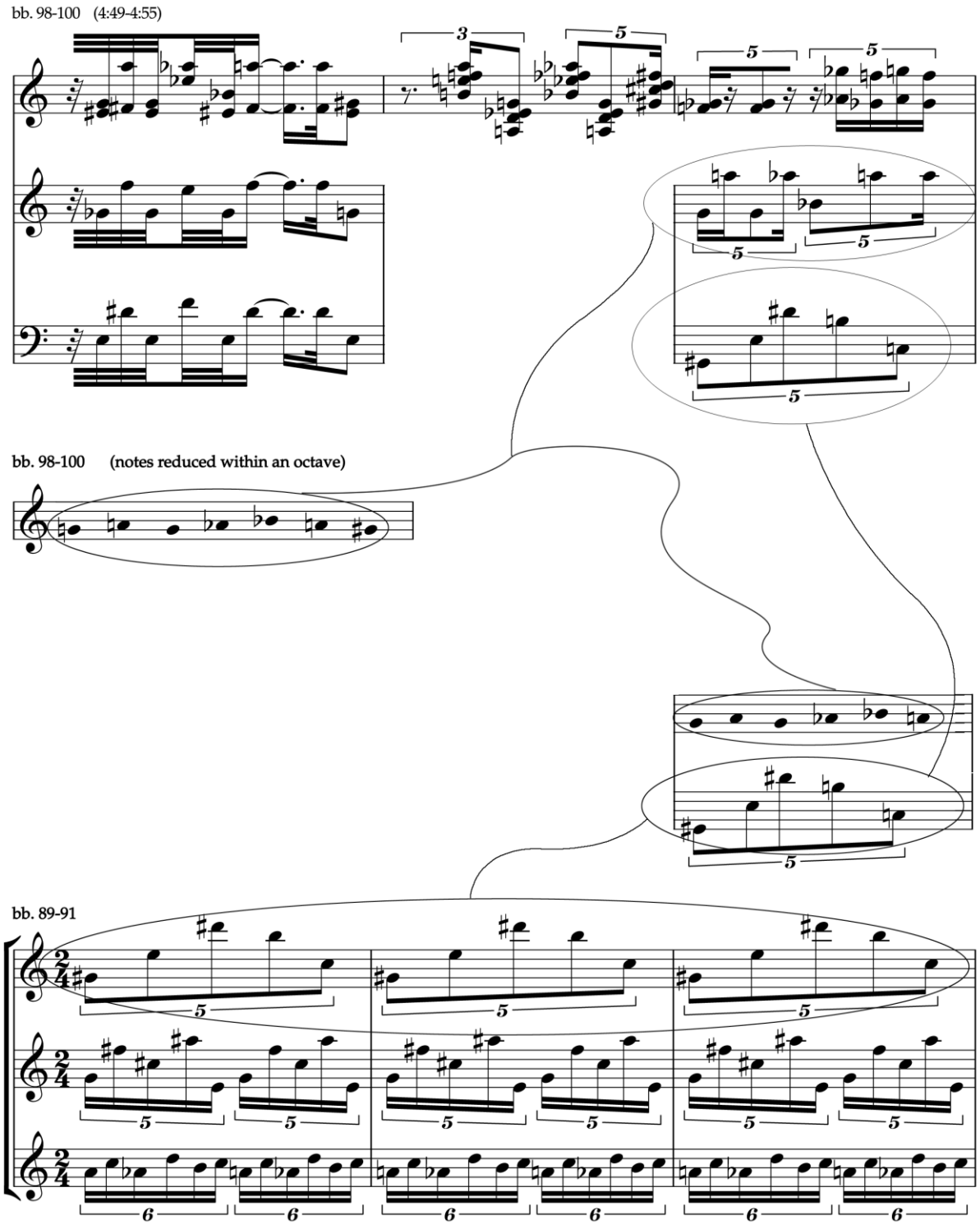
At b. 159, the same phrase is reintroduced by a violin, but is barely detectable in the aural as it is buried among more salient features and therefore requires a score for accurate identification. As the violin performs this phrase, there are polyrhythmic patterns juxtaposed with each other in the percussion implying the type of motion of different rates discussed in the "Mo 'n Herb's Vacation" example above. Interjectory tuplets in the woodwinds further detract from the melodic phrase which has now become completely embedded. The final instigation of this phrase in the penultimate bar at 165 is fragmental, starting from the (G#) of prior iterations, wherein the rhythm is now modified making it less recognisable again.



EXAMPLE 8.5. "Pedro's Dowry" Concealed Transformations.

Further evidence of this type of undercurrent repetition is from the main introductory viola line performed in the first bars of the piece. As observed in the analysis in chapter 3, this introductory line progressively manifests and supplies the main impetus for melodic fragments thereafter. However, its reappearance amongst other more prominent surface features at bb. 145-146 is an indication of a concealed repetition whereby a concerted effort on part of the listener or closer study of the score is required in order to identify it. Even more challenging to

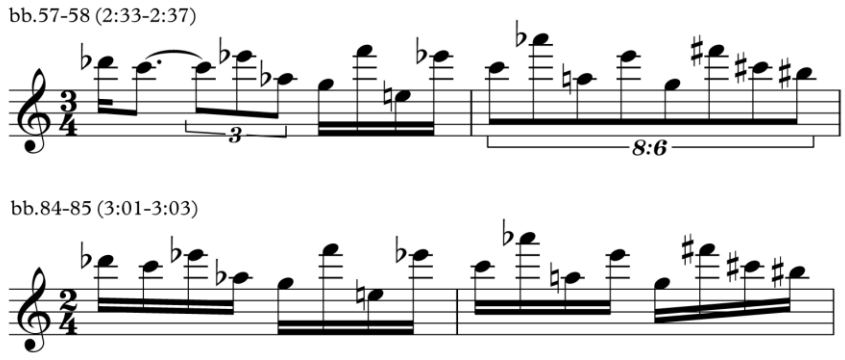
decipher are repetitions that occur in bb. 98-100, which although are at close range, remain elusive unless reading the score. In addition, the elusiveness is further compounded by the alteration of pitch space in terms of the notes subject to repetition. The complex network of melodic lines extends these two bars where at b. 100 in the bass clef, the quintuplet is a re-instigation of the quaver note quintuplet in the flutes from bb. 89-91. This exemplifies a diffusion of recycled material which forms the basis for structural continuity that is not so easy to detect in the aural.



EXAMPLE 8.6. "Pedro's Dowry" Complex Interconnectivity.

Repetition is an integral part of Zappa's compositional process and is subject to a variety of creative techniques. Zappa's use of repetition is intriguing because although repetitions are incorporated into the composition they do not always sound as such, yet somehow manage to

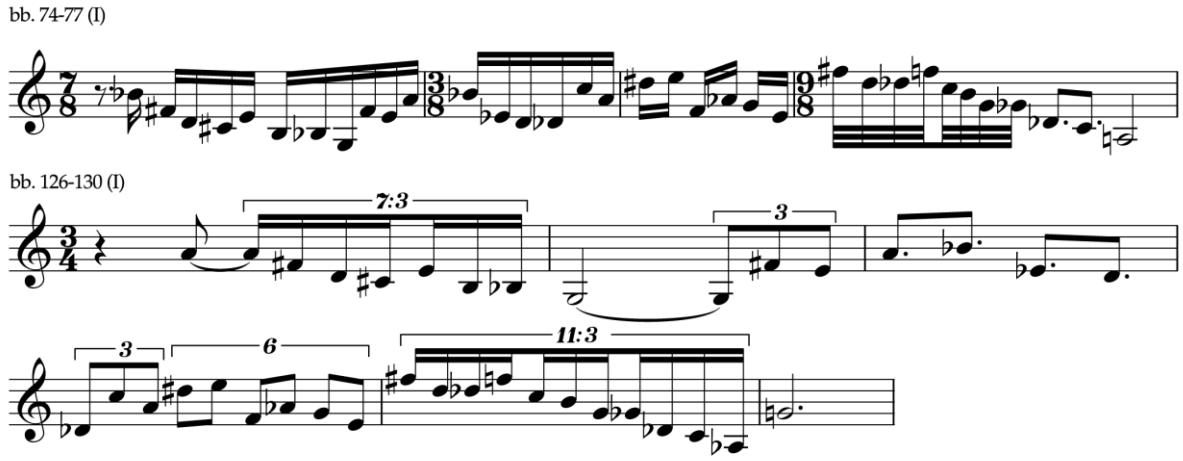
consolidate the music. Let us now re-examine how repetition is 'structurally' built into the composition. Clement (2009) was the first to identify an important type of repetition in Zappa's music and had adopted the term *isomelism* to describe it. As described in chapter 2, it is the process of a melodic line that on repetition retains the melody (sometimes as a transposition) but of which the rhythm is transformed. As mentioned, this technique has the potential to either render noticeable or not, the repeated musical material, depending on how the process is implemented. For example, in "Alien Orifice", immediately after Zappa's guitar solo at (2:33), a short composed section begins with tuned percussion, synthesiser and guitar. The first two bars of this section are later repeated as an isomelic variation interpolated between continuous successions of semiquaver notes. Because the succession of semiquavers is continuous and the isomelic interpolation is someplace between the beginning and end of this particular section it passes by quickly, barely noticeable as an isomelic variation.



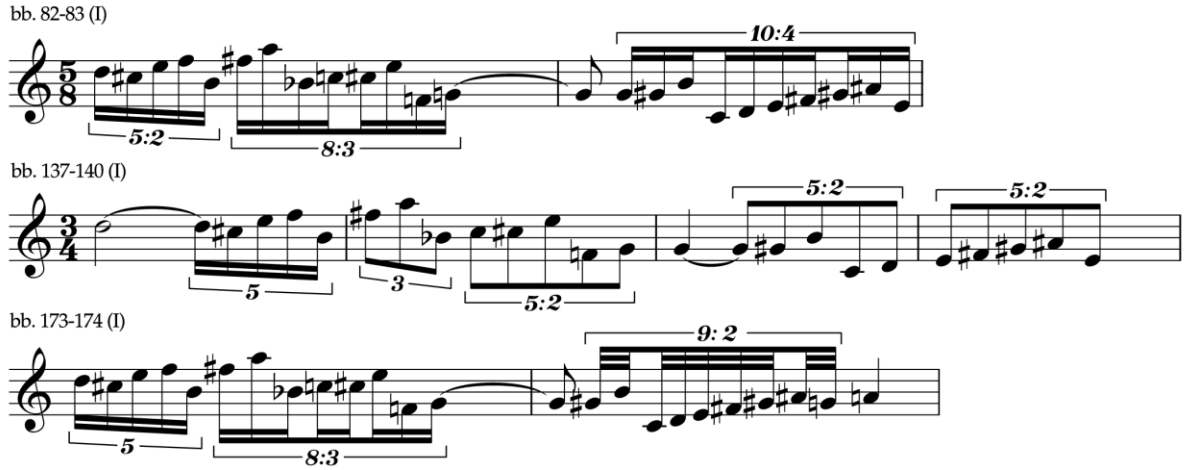
EXAMPLE 8.7. "Alien Orifice" Isomelic Variation.

A similar process occurs in the first movement of "Sinister Footwear" which is riddled with isomelic activity. Bars 74-100 contain a sustained passage of angular melodic runs distributed among the different sections of the orchestra, interspersed with coordinated horns, strings and percussion strikes. The same passage is repeated at bb. 126-156 with different orchestration and isomelic variation that extends the bar count in relation to the first incarnation from

bb. 74-100. Part of this augmentation process is illustrated in (ex. 8.8a) where only a few bars of the passage are shown. Comparing bb. 74-77 and bb. 126-130 in the example, we can see the rhythm of the melody is significantly altered in its recapitulation. The intervening section between bb. 103-125 (not shown in example) obscures the reintroduction of the passage at b. 126 and is barely noticeable as a repetition. Ultimately, when done overtly, *isomelism* presents less of a challenge in identification, however if carried out in a surreptitious manner renders continuity indecipherable and only identifiable by reading the musical score.



EXAMPLE 8.8a. "Sinister Footwear" Isomelic Variation.



EXAMPLE 8.8b. "Sinister Footwear" Isomelic Variation.

It seems that there is a fine line between music intended for the subconscious and the implementation of *isomelism*. We cannot be entirely sure if and when *isomelism* is being used as either a structural technique or if it is functioning at the subliminal level. Zappa suggested that this discrete application was an ongoing process in his works, so we can rest assured that the composer seriously employed the technique within different mediums. But, to be absolute in terms of its function in the orchestral pieces is more challenging.

Conclusion

As cacophonous as Zappa's music can sound, there is careful deliberation in its construction and a purpose for every inherent detail, however subsumed it may be. There are specific compositional traits that permeate each of the selected pieces, which consist of *Chord Bible* harmony, recurrent pitch cells, irregular rhythmic groupings and *isomelism*. The manner in which these techniques are manipulated is what distinguishes one piece from the other, and one of the most prominent techniques that facilitates this differentiation is orchestration. Ashby (see chapter 1) has made a special case for Zappa's approach to orchestration in his article "Frank Zappa and the Anti-Fetishist Orchestra" (1999) wherein he contrasts Zappa's unique yet practical manipulation of the orchestra with that of the romantic idea of orchestration, the latter as viewed by Ashby, to be an abstraction from labour. Certainly Zappa's artistry in exploiting the various instruments of the orchestra is an important consideration in his compositional technique. Some examples of this are large registral disparities between instruments that perform melodies simultaneously, as in "Pedro's Dowry" (bb. 130-134) where the bass clarinet and piccolo are separated by 4 octaves. This produces a kind of constrictive sound as both instruments are so self-contained, in that both are indicative of a particular range and texture. The uncharacteristic employment of these two registral extremes counterbalance each other in an extraordinary way. Furthermore, the unorthodox application of melody to

unusual instrument combinations also caters for the manipulation of instrument characterisation. By notating specific nuances and techniques generally reserved for other instruments, Zappa also deconstructed common perceptions of the sound an instrument could actually produce. Again in "Pedro's Dowry" (bb. 24-32) the electric viola and trombone share *glissandi* and slide around the melody creating a sort of disorientation with comical effect. This then leads us to another key feature of Zappa's music and that is the inference of humour via instrument nuances.

Humour and allusion are vital considerations in Zappa's music. The humour element takes on a form of its own, incorporating almost endless narratives about the American way of life and the social, cultural and political conditions of those within it as well as musical allusions to convey those conditions.[54] How this translates in the orchestral pieces is interesting and relies on cultural norms as providing material for approximations or perversions thereof. It is not as easily detectable as in the ECE pieces because in the ACE music there are no spoken words or lyrics to portray the humour or allusion. There are theatrical elements to some of the orchestral pieces which can convey extra musical qualities but it is not as direct or effective as in the ECE pieces. However, the manipulation of certain orchestral timbres and nuances is detectable and is a powerful device for portraying humorous characteristics, assuming that the audience are culturally predisposed to the allusion.

> As far as the completely orchestrated stuff goes, many people hearing these things that do not have a text don't hear the humour in it, in what the notes are saying and the instruments that are playing the notes. If you consider the normal function of an instrument and the way an instrument is expected to behave in an orchestral ensemble and if you assign a function to that instrument that takes it out of its normal character that's an element of humour.[55]

In "Mo 'n Herb's Vacation – Second Movement" b. 54 (see chapter 6), some melodies are harmonised a semitone apart. The effect is 'cartoon-esque', an example of a cultural norm contextually transformed yet retaining the humour element connected to it. The fact that

[54] See Ferrandino (2015).
[55] Brown, Meldrum, Pepperell. "The Zappa Interview." *Go-Set*, 8(28), July 14, 1973.

humour was present, even in highly dissonant music, is testament to the unique ability Zappa had at unifying the incompatible. In a way, this characterises the complexity of interpreting his music. Zappa presented the listener with 'serious music' but somehow mocked it at the same time which carried confusing signals to those who struggled to appreciate the composer's intent. However difficult these odd juxtapositions are to appreciate, like the irreconcilable musical transitions, the comic allusions are also an integral part of the oeuvre and cannot be separated from the entire work.

For Zappa, structural considerations were an ongoing issue, and how to maintain continuity in chromatic music unsupported by definitive mathematical constructs or stronger narratives surely would have been challenging. Zappa's solution to the problem was devising idiosyncratic forms of repetition. In the first analysis ("Pedro's Dowry"), repetition is defined by reinstatements of melodic phrases altered by pitch space and rhythmic configuration. A similar process occurs in "The Perfect Stranger", "Mo 'n Herb's Vacation" and to a lesser extent, "Bob in Dacron". It appears that Zappa relied on this form of repetition as a way to hold continuity in the chromatic pieces. The repetition can be conspicuous or not, and therefore necessitates a tripartite division in our interpretation. The reason for this concealed transformation leads to three possible conclusions: (1) Zappa was routinely employing *isomelism*, one of his mainstay techniques, (2) strategically placing repetitions intended for the subconscious, (3) or the repetitions were an extension of committing to manuscript ideas that were graphically appealing. In fact, it is likely that it was a combination of all three. Without commentary from the composer, one cannot be certain and therefore the three possible conclusions should be considered. I have attempted to address this problem by drawing from interviews Zappa gave about the correlation between his compositions and the psychological and physiological effects, as well as those which discuss the composer's intrigue with the graphical representation of music notation. These observations help to explain the reasons for

surface disjuncture in Zappa's music. This is because those compositional processes can cause repetitions to be obscured. What this means is that although there may appear to be a sort of surface discontinuity, subsumed and potentially functioning on different levels (see aforementioned tripartite division), there is a strong connective compositional thread.

While the selected orchestral pieces encapsulate compositional techniques that are consistently applied, I have aligned them with Zappa's ideas and concepts which help to bring added coherence to the musical attributes. *Conceptual continuity* most certainly provides a platform for drawing in all the disparate elements found in Zappa's works as a whole. Whether Zappa discussed the psychological or physiological effects of music, fractals in rhythm, non-linear time, or music intended for the subconscious, all ideas play a part in the conceptualisation of composition. Not all concepts can be applied to all compositions, as the interests of the composer at various times throughout his career would have shifted. For example, his notion of fractals seemed to have evolved from his interaction with the Synclavier during the 1980s. In particular the manner in which one of the editing screens of the Synclavier presented pitches and rhythms (see *Rhythm and Fractals* in this chapter). However, one constant throughout is *conceptual continuity* which by its very nature allows these 'sub-concepts' to function.

The conceptuality that Zappa proposed is measured by the techniques in use. So for instance, the term that "everything is happening all the time"; a perspective that refutes the perceived linearity of time is conceptually transformed into compositional and musical manifestations. As examined in chapter 6, "Mo 'n Herb's Vacation – Second Movement", the main theme of the movement is stated from the outset, but as the piece progresses the theme is broken up into three fragments. In (ex. 6.11) the three fragments are presented simultaneously, thus representing an example of the conceptuality of non-linearity. This concept is exhausted in "Mo 'n Herb's Vacation – Third Movement" where fragments and sections from all three movements collide and intercept each other. A simultaneity of the most prominent features of

each movement are brought together as a temporal concurrence that could be seen to resonate with the non-linear sense of time or as merely a recapitulatory statement. Of course, one could assume that this is nothing more than a musical technique of overlaying fragments to create a certain effect and indeed that interpretation has validity too. But aligning this with Zappa's concepts builds a stronger relationship between the disparate elements of music and *conceptual continuity*. It also provides a way to determine how the conceptuality can be represented in the physical realm of sound. It is one thing to speak of the conceptual scaffolding of music, but to be able to elucidate it and show musical examples that clearly demonstrate the concept has more utility, especially when limited clues are given to the musical structure. Zappa's reference to a Calder mobile is another opportunity to illustrate a conceptual correlation in that no matter how disjunctively placed sound objects appear to be, they are essentially part of the totality (see chapter 2). The totality can be the composition itself or the whole creative output, hence a reiteration of *conceptual continuity*. *Conceptual continuity* simultaneously draws inwards and projects outwards all the elements contained within. For example, one could pick any aspect of Zappa's work and follow it back to the central concept, or one could begin from the central concept and outwardly explore and connect all the elements.[56]

Before I embarked on this investigation, I had often wondered where one would start in assembling music like that; what techniques were being used? How were the chords constructed? What was the relationship between chords and melodies? I was intrigued by the sound of the orchestral compositions and marvelled at the intricacies and seemingly limitless ideas. The research conducted herein has provided answers to many of the questions I had. However, some still remain unanswered, such as the logic behind *CB* harmony successions,

[56] An excellent visual representation of *Conceptual Continuity* is provided by Cameron Piko. At the time of writing, the *Conceptual Continuity* map is available at: http://in-disciplined.com/?p=315 (Accessed: 9 June 2016).

and how Zappa employed "The Book of Ratios".[57] Although a lot has been written about Zappa, there is still potential for more work in the field of Zappa music analysis. While the research has revealed some interesting musical attributes and to some extent satisfied my curiosity, it is hoped that the research will also make an important contribution to the wider community of scholars interested in the structure of Zappa's music. My research is in no way complete, it is merely a sample of an immense volume of music from one composer. Perhaps some of the ideas presented herein will inspire Zappa musicologists to further develop and explore them and perhaps refine elements I have left unresolved.

[57] Ed Mann informed me of a book of ratios that Zappa sometimes consulted for structuring chords and melodies, Mann explained that: "Frank's father created a table of mathematical ratios for him, with the directive to employ those ratios into his music, which would assure strong effect on the result… All of the following examples come from the ratios created by Zappa Sr., who also indicated an energetic characteristic which was associated with each ratio. First and most prominently, "the 2 chord". Instead of voicing a chord as either major or minor, the value it is left open by substituting the interval of a 2nd in place of the usual 3rd. This is an inversion of stacked perfect 5ths, which is what Inca Roads is all about. The inverted stacked P5s is stacked P4s, which is what we see in Pound for a Brown. The way Frank explained it to me is that these intervals, 2, 4 and 5 are resonantly strong, whereas 3rds are weak. Once a strong foundation for the chord is established, 7ths, and 9ths take on a new meaning. I do not know the ratios, and Frank did not speak of the ratios, but he did bring his father's writings out for me to see, and showed me interpretive examples on the piano (that was the 2nd day I was in the band, Frank treated many newcomers like long-lost younger brothers). Actually my first experience with this was before I was in the band, and recording overdubs on The Black Page. The first thing Frank did with us was to look at the chord chart, and he wrote out the voicings he intended, many of which used the "2" voicing".

BIBLIOGRAPHY

Adorno, TW. and Horkheimer, M. 1972. *Dialectic of Enlightenment*. New York: Herder & Herder.

Adorno, TW. 1991. *The Culture Industry, Selected essays on mass culture*, in Bernstein, JM. (ed.). London: Routledge.

Allaby, M. 1995. *Facing the Future: the case for science*. London: Bloomsbury Publishing PLC. 1995.

Ashby, A. 1999. 'Frank Zappa and the Anti-Fetishist Orchestra', *The Musical Quarterly*, 83 (4), pp. 557-606.

Benjamin, W. 1992. 'The Work of Art in the Age of Mechanical Reproduction', in Frascina, F. and Harris, J. (ed.) *Art in Modern Culture: an anthology of critical texts*. New York: HarperCollins, pp. 297-307.

Bernard, JW. 2000. 'Listening to Zappa', *Contemporary Music Review*,18(4), pp. 63-103.

Bernard, JW. 1987. 'Inaudible Structures, Audible Music: Ligeti's Problem, and His Solution', *Music Analysis*, 6(3), pp. 207-236.

Bernard, JW. 2000. 'The Musical World(s?) of Frank Zappa: Some Observations of His "Crossover" Pieces', in Everett, W. (ed.) *Expression in Pop-Rock Music*. New York: Garland pp. 157–209.

Boenn, G. 2008. The Importance of Husserl's Phenomenology of Internal Time-Consciousness for Music Analysis and Composition', *ICMC 2008*, Belfast, 24-29 August. ICMA. [Online]. Available at: http://quod.lib.umich.edu/i/icmc/bbp2372.2008.157/1 (Accessed: 3 July 2014).

Borders, J. 2001. 'Form and the Concept Album: Aspects of Modernism in Frank Zappa's Early Releases', *Perspectives of New Music* 39(1), pp 118-160.

Borders, J. 2000. 'Frank Zappa's 'The Black Page': A Case of Musical 'Conceptual Continuity', in Everett, W. (ed.) *Expression in Pop-Rock Music*. New York: Garland pp. 137–156.

Boss, J. 1992. 'Schoenberg's Op. 22 Radio Talk and Developing Variation in Atonal Music', *Music Theory Spectrum*, 14(2), pp. 125-49.

Boss, J. 2000/2001. 'The "Musical Idea" and Global Coherence in Shoenberg's Atonal and Serial Music', *Intégral*, 14(15), pp. 209-264.

Brecht, B. 1964. *Brecht on Theatre: The Development of an Aesthetic*. Edited and translated by John Willet. New York: Hill and Wang.

Brown, Meldrum, Pepperell. "The Zappa Interview." *Go-Set*, 8(28), July 14, 1973.

Carr, P. 2013. *Frank Zappa and the And*, in Carr, P. (ed.) Surrey: Ashgate.

Clarke, EF. 1999. 'Subject-Position and the Specification of Invariants in Music by Frank Zappa and P.J. Harvey'. *Music Analysis* 18(3), pp. 347-374.

Clement, B. 2004. *A Study of the Melodies of the Guitarist/Composer Frank Zappa*. Masters thesis. Florida State University.

Clement, B. 2009. *A Study of the Instrumental Music of Frank Zappa*. PhD Diss. University of Cincinnati.

Clement, B. 2014. 'A New Lydian Theory for Frank Zappa's Modal Music', *Music Theory Spectrum,* 36(1), pp. 146-66.

Cohn, R. 1998. 'Introduction to Neo-Riemannian Theory: A Survey and a Historical Perspective', *Journal of Music Theory*, 42(2), pp. 167-180.

Colbert, P. 1980. 'Zappa: Speak Out', *Musicians Only*.

Crafts, SD. 1984. 'Zappa in Polyester', *East Bay Express*, 6(36), p. 15.

Dallas, K. 1978. 'Carry on Composing', *Melody Maker*, pp.8-9.

Dalton, J. 1979. 'Shut Up And Play Your Guitar', *Guitar*, 7(8), pp.23-26.

Davis, M. 1979. 'Record Review Interview – Frank Zappa', *Record Review*, 3(2), pp. 10-13.

Delville, Michel and Andrew Norris. 2005. *Frank Zappa, Captain Beefheart and the Secret History of Maximalism*. Cambridge: Salt Publishing.

Dunsby, J. and Whittall, A. 1988. *Music Analysis in Theory and Practice*. London: Faber Music Ltd.

Eberle, P. 1969. 'Frank Zappa & Paul Eberle Rapping In Los Angeles 1969', *Los Angeles Free Press*, 6(264), p. 38.

Ferrandino, ME. *What to listen for in Zappa: Philosophy, Allusion, and Structure in Frank Zappa's Music*. Masters thesis. University of Oregon.

Fixmer, R. 1975. 'A Matter Of Taste', *Bugle American*, No. 229, Dec 1975.

Forte, A. 1973. *The Structure of Atonal Music*. New Haven and London: Yale University Press.

Forte, A. 1963. 'Context and Continuity in an Atonal Work: A Set Theoretic Approach', *Perspectives in New Music*, 1(2), pp. 72-82.

Forte, D. 1979. 'Zappa'. *Musician,* 19, pp. 34-43.

Forte, D. 1983. 'Nagano On Conducting Zappa', *Mix,* 7(6), pp. 87-88.

Forte, D. 1986. 'The Sin In Synclavier', *Guitar Player*, pp. 38-42.

Griffiths, P. 2010. *Modern Music and After*. 3rd edn. Oxford: Oxford University Press.

Goldberg, LR. 1975. 'Zappa Gives UCLA Audience The Bird', *Daily Trojan*, 68(1), pp. 5, 8.

Hanslick, E. 1891. *The Beautiful in Music: A Contribution to the Revisal of Musical Aesthetics*. London: Novello and Company Ltd.

Haselden, K. 2000. 'Book Review, Frank Zappa: The Negative Dialectics of Poodle Play', *Capital & Class*, 24(3), pp. 237.

Hawkins, T. 1984. 'In Tune (Interview with Kent Nagano)', *East Bay Express*, 6(35), pp. 1, 11-13.

Herraiz, M. 2010. *O Estranho Perfeito: A Música Orquestral de Frank Zappa* [The Perfect Stranger: The Orchestral Music of Frank Zappa]. Masters thesis. Brazil: Universidade Estadual Paulista Júlio de Mesquita Filho.

Hindemith, P. 1984. *The Craft of Musical Composition, Book 1: Theory*. 4th edn. London: Schott Music Ltd.

Hindemith, P. 1984. *The Craft of Musical Composition, Book 2: Exercises in two-part writing*. 4th edn. London: Schott Music Ltd.

Hollinden, Andy. 2008. 'Everything is Now: How Frank Zappa Illustrates the Universe', *Actes Intermédiaires de la 3ème Conférence Internationale de Zappologie (ICE-Z 69)*, Paris, 5-6 July. [Online]. Available at: http://www.killuglyradio.com/storage/ICEZ-3-draft_2008.pdf (Accessed: 7 January 2016).

Kofsky, F. 1967. 'The Mothers of Invention: Part II', *Jazz and Pop*, 6(10), pp. 28-32.

Krebs, Harald. 1999. *Fantasy Pieces – Metrical Dissonance in the Music of Robert Schumann.* New York: Oxford University Press.

Lennon, N. 2003. *Being Frank: My Time with Frank Zappa*. California: California Classics.

Lerdahl, F. 1989. 'Atonal Prolongational Structure', *Contemporary Music Review*, 4(1), pp. 65-87.

Lewin, D. 1962. 'A Theory of Segmental Association in Twelve-Tone Music', *Perspectives of New Music*, 1(1), pp. 89-116.

London, J. 2004. *Hearing in Time: Psychological Aspects of Musical Meter*. New York: Oxford University Press.

Lyons, S. and Friedman, B. 1987. 'Frank's Wild Years From "Louie The Turkey" To The London Symphony', *Option*, March/April.

Marshall, B. 2014. *Interview by Bob Marshall – October 22 1988*. Available at: http://wiki.killuglyradio.com/wiki/Interview_by_Bob_Marshall.

Menn, D. 1992. 'Zappa!', *Guitar Player*.

Meyer LB. 1956. *Emotion and Meaning in Music.* London: University of Chicago.

Middleton, Richard. 1990. *Studying Popular Music*. Milton Keynes: Open University Press.

Milkowski, B. 1983. 'Frank Zappa: Guitar Player', *Downbeat*, 50(2), pp. 14-17, 46.

Milkowski, Bill. 1984. 'Orchestral Maneuvers', *Modern Recording & Music*, 10(8), p. 29.

Morgan, RP. 1976. 'Dissonant Prolongations: Theoretical and Compositional Precedents', *Journal of Music Theory,* 20, pp. 49-91.

Morris, RD. 1993. 'New Directions in the Theory and Analysis of Musical Contour', *Music Theory Spectrum* 15(2), pp. 205-228.

Mulhern, T. 1983. 'I'm Different Or Not Exactly Duane Allman', *Guitar Player*, 17(2), pp. 23-29, 31-35.

Nguyen, VQ. 2012. *A Historical Overview, Analysis, and Wind Transcription of Frank Zappa's "Sad Jane"*. Diss. University of Washington.

Nobile, DF. 2013. 'Interval Permutations', *Music Theory Online*, 19(3) pp. 1-18. Available at: http://www.mtosmt.org/issues/mto.13.19.3/mto.13.19.3.nobile.html.

Paddison, M. 1982. 'The Critique Criticised: Adorno and Popular Music', *Popular Music*, Vol. 2, pp. 201-218.

Paddison, Max. 1993. *Adorno's Aesthetics of Music*. Cambridge: Cambridge University Press.

Palmer, J. 2014. 'Relative Values', *The Sunday Times Magazine*, 6 April, pp. 7-8.

Perna, DA. 2003. 'Dynamo Frank', *Guitar World*. 23(12), p. 106.

Peterson, C. 1979. 'Frank Zappa: He's only 38 and he knows how to nasty', *Relix,* 6(5), pp. 20-22, 27-28, 44.

Petroski, H. 2009. 'Once an Engineer', *American Scientist*, 97(4), pp. 282-285. *jstor* [online]. Available at: http://www.jstor.org/stable/27859353 (Accessed: 31 January 2016).

Price, WM. 2004. *An Analysis of the Evolution of Frank Zappa's Be-Bop Tango*. PhD Diss. Louisiana State University.

Rip, R. 1977. 'Frank Zappa – A Would-be Chemist Who Turned to Music', *The Valley News*.

Roig-Francolí, M. 2001. "A Theory of Pitch-Class-Set Extension in Atonal Music," *College Music Symposium,* Vol. 41, pp. 57-90.

Rosch, E. 1973. 'On the Internal Structure of Perceptual Semantic Categories', in T. Moore (ed.), *Cognitive Development and the Acquisition of Language*, New York: Academic Press, 1973 and *Natural categories*. Cognitive Psychology 4(3), pp.328–50.

Rosen, C. 2012. 'Elliott Carter's Music of Time', *The New York Review of Books*, 59(2), p. 24.

Rosen, S. 1977. ‘Frank Zappa’, *Guitar Player*, 11(1), pp. 24-50.

Russell, G. 2001. *Lydian Chromatic Concept of Tonal Organization*. 4th edn. Massachusetts: Concept Publishing Company.

Salzer, F. 1962. *Structural Hearing: Tonal Coherence in Music*. New York: Dover Publications.

Schneckloth, T. 1978. ‘Garni Du Jour, Lizard King Poetry And Slime’, *Down Beat*, 45(10), pp. 15-17, 44-46.

Schoenberg, A. 1970. *Fundamentals of Musical Composition*, in Strang, G. (ed.) London: Faber and Faber Limited.

Simms, D., Buxton, E. and Samler, R. 1990. ‘They’re Doing the Interview of the Century’, *Society Pages*.

Singleton, B. 2007. *Musical meaning in Frank Zappa’s The Blue Light and Galoot Update*. Masters thesis. Open University.

Slaven, N. 1997. *Electric Don Quixote: The Story of Frank Zappa*. London: Omnibus.

Solomon, L. 2002. *The Fractal Nature of Music*. Available at: http://solomonsmusic.net/fracmus.htm

Spurrier, J. 1987. ‘Zappa on Jazz from Hell’, *Music & Sound Output*, 7(4), pp.24-28, 72, 76.

Stockhausen, K. 1958. ‘Structure and Experiential Time’, *Die Reihe*, 1(4), pp. 64-74.

Straus, JN. 1987. ‘The Problem of Prolongation in Post-Tonal Music’, *Journal of Music Theory*, 31(1), pp. 1-21.

Tagg, P. 1999. ‘Introductory notes to the Semiotics of Music’. Available at: www.tagg.org/html/semiotug.html.

Tarasti, E. 1994. *A Theory of Musical Semiotics.* Indiana University Press.

Tarasti, Eero. 2002. *Signs of Music: Approaches to Applied Semiotics.* Berlin: Mouton de Gruyter.

Thakar, M. 2011. *Looking for the “Harp” Quartet: An Investigation into Musical Beauty*. New York: University of Rochester Press.

Thompson, B. 1994. ‘Book Review/Idol speculations: ‘Frank Zappa: The Negative Dialectics of Poodle Play’ - Ben Watson’, *The Independent*, 17th July. Available at: http://www.independent.co.uk/arts-entertainment/book-review--idol-speculations-frank-zappa-the-negative-dialectics-of-poodle-play--ben-watson-quartet-25-pounds-1414463.html.

T’Mershi Duween. 1999. “Mann Alive!”, Ed Mann interview by Evil Prince”, Vol. 62.

Van den Toorn, PC. 1996. ‘What’s in a Motive? Schoenberg and Schenker Reconsidered’, *The Journal of Musicology*, 14(3), pp. 370-399.

Volgsten, U. 1999/2009. *Music, Mind and the Serious Zappa, The Passions of a Virtual Listener*. PhD Diss. Stockholm University.

Waggoner, L. 1975. 'Frank Zappa – expecting the remarkable', *Los Angeles Free Press*, 12(37), p.15.

Wannamaker, R. 2012. 'Rhythmicon Relationships, Farey Sequences, and James Tenney's Spectral CANON for CONLON Nancarrow', *Music Theory Spectrum*, 34(2), pp. 48-70.

Watson, B. 1994. 'Hail and Farewell', *The Wire*, No.120, pp. 26-30.

Watson, B. 1994. *Frank Zappa the Negative Dialectics of Poodle Play*. London: Quartet Books Ltd.

Weitzman, S. 1975. 'What's A Mother To Do?' *Zoo World*, No. 75, pp. 12-15.

Wragg, D. 2001. 'Or any art at all?': Frank Zappa meets critical theory', *Popular Music*, 20(2). pp. 205-222.

Wright, A. 2007. *Frank Zappa's Orchestral Works: Art Music or 'bogus pomp'?*. Masters thesis. University of Glasgow.

Zappa, F. 1982. The Frank Zappa Guitar Book. California: Munchkin Music.

Zappa, F. and Occhiogrosso, P. 1989. *The Real Frank Zappa Book.* London: Pan Books Ltd.

Zappa, F. 1983. 'Non-Foods: Coming to Grips with Polyrhythms', *Guitar Player*, 17(4), p.101.

Zappa, F. 1983. 'Non-Foods: Not the Moody Blues', *Guitar Player*, 17(11), p.117.

Zappa, F. 1983. 'Zappa'. Program Notes. *The London Symphony Orchestra*. The Barbican Centre, London.

Zbikowski, LM. 1999. 'Musical Coherence, Motive, and Categorization', *Music Perception* 17(1), pp. 5-42.

Zollo, Paul. 1987. 'Frank Zappa: The Song Talk Interview', *Songtalk*, 4(1), p. 35-38.

Zuck, B. 1984. 'Classical Zappa - Can rock music's zaniest social critic find peace and happiness with the London Symphony? Stay tuned', *Capitol*, April Issue, pp. 10-11, 16, 18, 19.